

1/47

```

1  GTCCCTCCACCATGCACTCGCTGGGCTTCTTCTCTGTGGCGTGTCTCTCTGCTCGCCGCTG
   +-----+-----+-----+-----+-----+-----+-----+-----+
60  CAGGAAGGTGGTACGTAGCGACCCGAAGAAGAGACACCCGACCAAGAGACGAGCGGCGAC
   M H S L G F F S V A C S L L A A A -
61  CGCTGCTCCCGGTCCTCGGAGGCGCCCGCGCGCGCCTTCGAGTCCGGACTCG
   +-----+-----+-----+-----+-----+-----+-----+-----+
120  GCGACGAGGCGCCAGGAGCGCTCCGGGCGGCGGCGCGGCGGAGCTCAGGCCTGAGC
   L L P G P R E A P A A A A A F E S G L D -
121  ACCTCTCGGACGGGAGCCCGACGCGGGCGAGGCCACGGCTTATGCAAGCAAAGATCTGG
   +-----+-----+-----+-----+-----+-----+-----+-----+
180  TGGAGAGCCCTGCGGCTCGGGCTGCGCCCGCTCCGGTGCCGGAATACGTTCTCTAGACC
   L S D A E P D A G E A T A Y A S K D L E -
181  AGGAGCAGTTACGGTCTGTGTCCAGTGTAGATGAACATCATGACTGTACTCTACCCAGAAT
   +-----+-----+-----+-----+-----+-----+-----+-----+
240  TCCTCGTCAATGCCAGACACAGGTCACATCTACTTGAGTACTGACATGAGATGGGTCTTA
   E Q L R S V S S V D E L M T V L Y P E Y -
241  ATTGGAAAATGTACAAGTGTCAAGCTAAGGAAAGGAGGCTGGCAACATAACAGAGAACAGG
   +-----+-----+-----+-----+-----+-----+-----+-----+
300  TAACCTTTTACATGTTACAGTCGATTCTCTTCCCTCCGACCGTTGTATTGTCTCTTGTC
   W K M Y K C Q L R K G G W Q H N R E Q A -
   CCAACCTCAACTCAGGACAGAGAGACTATAAAATTGCTGCAGCACATTATAATACAG

```

MATCH WITH FIG. 1B

FIG. 1A

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MATCH WITH FIG. 1A

```

301  -----+-----+-----+-----+-----+-----+-----+-----+ 360
      GGTGGAGTTGAGTTCCTGTCCTCTCTGATATTTTAAACGACGTCGCTGTAATATATGTC
        N L N S R T E E T I K F A A A H Y N T E -
      AGATCTTGAAAAGTATTGATAATGAGTGGAGAAAGACTCAATGCATGCCACGGGAGGTGT
361  -----+-----+-----+-----+-----+-----+-----+-----+ 420
      TCTAGAACTTTTCATAACTATTACTACCTCTTCTTGAGTTACGTACGGTGCCCTCCACA
        I L K S I D N E W R K T Q C M P R E V C -
      GTATAGATGTGGGAAGGAGTTTGGAGTCGCGACAAACACCTTCTTTAAACCTCCATGTG
421  -----+-----+-----+-----+-----+-----+-----+-----+ 480
      CATATCTACACCCCTTCCTCAAAACCTCAGCGCTGTTTGTGGAAGAAATTTGGAGGTACAC
        I D V G K E F G V A T N T F F K P P C V -
      TGTCCGCTACAGATGTGGGGTGTGCTGCAATAGTGAGGGCTGCAGTGCATGAACACCA
481  -----+-----+-----+-----+-----+-----+-----+-----+ 540
      ACAGGCAGATGTCTACACCCCCAACGACGTTATCACTCCCCGACGTCACGTACTTGTGGT
        S V Y R C G G C C N S E G L Q C M N T S -
      GCACGAGCTACCTCAGCAAGACGTTATTGAAATTACAGTGCCCTCTCTCAAGGCCCCA
541  -----+-----+-----+-----+-----+-----+-----+-----+ 600
      CGTGCTCGATGGAGTCGTTCTGCAATAAACTTTAATGTCACGGAGAGAGATTCCGGGGT
        T S Y L S K T L F E I T V P L S Q G P K -
      AACCAGTAACAATCAGTTTGGCCAATCACACTTCCTGCCGATGCATGTCTAAACTGGATG
601  -----+-----+-----+-----+-----+-----+-----+-----+ 660
      TTGGTCATTGTTAGTCAAAACGGTTAGTGTGAAGGACGGCTACGTACAGATTGACCTAC
        P V T I S F A N H T S C R C M S K L D V -

```

MATCH WITH FIG. 1C

FIG. 1B

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MATCH WITH FIG. 1B

```

661 TTTACAGACAAGTTCAATTCATTTAGACGTTCCCTGCCAGCAACACTACCACAGTGTC
-----+-----+-----+-----+-----+-----+-----+
720 AAATGCTCTGTTCAAGTAAGTAATCTGCAAGGACGGTCGTTGTGATGGTGTACACAG
Y R Q V H S I I R R S L P A T L P Q C Q -
AGGAGCGGAACAAGACCTGCCCCCAACCAATTACATGTGGAATAATCACATCTGCAGATGCC
721 -----+-----+-----+-----+-----+-----+-----+
TCCGTCGCTTGTCTGGACGGGTGTTAATGTACACCTTATTAGTGTAGACGCTCTACGG
A A N K T C P T N Y M W N N H I C R C L -
TGGCTCAGGAAGATTTTATGTTTTCCTCGGATGCTGGAGATGACTCAACAGATGGATTCC
781 -----+-----+-----+-----+-----+-----+-----+
ACCGAGTCCTTCTAAATAACAAGAGCCCTACGACCTCTACTGAGTTGTCTACCTAAGG
A Q E D F M F S S D A G D D S T D G F H -
ATGACATCTGTGGACCAACAAGAGCTGGATGAAGAGACCTGTCAGTGTGTCTGCAGAG
841 -----+-----+-----+-----+-----+-----+-----+
TACTGTAGACACCTGGTTTGTTCCTCGACCTACTTCTCTGGACAGTCAACAGACGCTCTC
D I C G P N K E L D E E T C Q C V C R A -
CGGGGCTTCGGCCTGCCAGCTGTGGACCCCAAGAACTAGACAGAACTCATGCCAGT
901 -----+-----+-----+-----+-----+-----+-----+
GCCCCGAAGCCGGACGGTCGACACCTGGGTGTTTCTTGATCTGTCTTTGAGTACGGTCA
G L R P A S C G P H K E L D R N S C Q C -
GTGTCTGTAAAAACAACCTCTTCCCCAGCCCAATGTGGGGCCCAACCGAGAATTTGATGAAA
961 -----+-----+-----+-----+-----+-----+-----+
CACAGACATTTTGTGAGAGGGGTGCTGTTACACCCCGGTGGCTCTTAAACTACTTT

```

FIG. 1C

MATCH WITH FIG. 1D

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MATCH WITH FIG. 1C

```

V C K N K L F P S Q C G A N R E F D E N -
ACACATGCCAGTGTATGTAAAGAACCTGCCCCCAGAAATCAACCCCTAAATCCTGGAA 1080
TGTTACGGTCACACATACATTTCTTGACGGGCTTTAGTTGGGATTTAGGACCTT
T C Q C V C C K R T C P R N Q P L N P G K -
AATGTGCCCTGTGAATGTACAGAAAGTCCACAGAAATGCTTGTAAAGGAAAGATTCC 1140
TTACACGGACACTTACATGTCTTTCAGGTGTCTTTACGAACAATTTCTCTTCTCAAGG
C A C E C T E S P Q K C L L K G K K F H -
ACCACCAACATGCAGCTGTTACAGACGGCCCATGTACGAACCGCCAGAGGCTTGTGAGC 1200
TGGTGGTTTGTACGTCGACAAATGTCTGCCGGTACATGCTTGGCGGTCTTCCGAACACTCG
H Q T C S C Y R R P C T N R Q K A C E P -
CAGGATTTTCATATAGTGAAGAAGTGTGTCGTGTGTCCTTCATATTTGGCAAAGACCAC 1260
GTCCTAAAAGTATATCACTTCTTACACAGCAACACAGGGAAGTATAACCGTTTCTGGTG
G F S Y S E E V C C R C V P S Y W Q R P Q -
AAATGAGCTAAGATTGTACTGTTTCCAGTTCATCGATTTTCTATTATGGAAAACGTGTGT

```

MATCH WITH FIG. 1E

FIG. 1D

MATCH WITH FIG. 1D

1261 -----+-----+-----+-----+-----+-----+-----+ 1320
 TTTACTCGATTCTAACATGACAAAGGTCAAGTAGCTAAAAGATAATACCTTTTGACACA
 M S *
 TGCCACAGTAGAACTGTCTGTGAACAGAGAGAGACCCCTTGTGGGTCCATGCTAACAAAGACA 1380
 1321 -----+-----+-----+-----+-----+-----+-----+
 ACGGTGTCATCTTGACAGACACTTGTCTCTCTGCGAACACCCAGGTACGATTGTTTCTGT
 AAAGTCTGTCTTTCCCTGAACCATGTGGATAAATTTACAGAAATGGACTGGAGCTCATCTG
 1381 -----+-----+-----+-----+-----+-----+-----+ 1440
 TTTTCAGACAGAAAGGACTTGGTACACCTATTGAAATGTCTTTACCTGACCTCGAGTAGAC
 CAAAAGGCCCTCTTGTAAGACTGGTTTTTCTGCCAATGACCCAAACAGCCAAGATTTTCCTC
 1441 -----+-----+-----+-----+-----+-----+-----+ 1500
 GTTTTCGGGAGAACATTTCTGACCAAAAGACGGTTACTGGTTGTCTGGTTCTCTAAAAGGAG
 TTGTGATTTCTTTAAAGAATGACTATATAATTTATTTCCACTAAAAATATTGTTTCTGCG
 1501 -----+-----+-----+-----+-----+-----+-----+ 1560
 AACACTAAAGAAATTTTCTTACTGATATATAATAAAGGTGATTTTATATAACAAAGACG
 ATTCATTTTATAGCAACAACAATTGGTAAACTCACTGTGATCAATATTTTATATCAT
 1561 -----+-----+-----+-----+-----+-----+-----+ 1620
 TAAGTAAAAATATCGTTGTTGTTAACCATTTTGAGTGACACTAGTTATAAAAAATATAGTA
 GCAAAAATATGTTTAAAAATAAAAAATGAAAAATTGTATTTTATAAAAAAA
 1621 -----+-----+-----+-----+-----+-----+-----+ 1674
 CGTTTATACAAATTTTATTTTACTTTTAAACATAAATAATTTTTTT
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FIG. 1E

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1 CGAGGCCACGGCTTATGCAAGCAAAGATCTGGAGGAGCAGTTACGGTCTGTGTCCAGTGT
-----+-----+-----+-----+-----+-----+-----+
71 AGATGAACTCATGACTGTACTCTACCCAGAATATTGGAAAATGTACAAGTGTCAAGCTAAG
-----+-----+-----+-----+-----+-----+-----+
M T V L Y P E Y W K M Y K C Q L R
121 GAAAGAGGCTGGCAACATAACAGAGAACAGGCCAACCTCAACTCAAGGACAGAAGAGAC
-----+-----+-----+-----+-----+-----+-----+
K G G W Q H N R E Q A N L N S R T E E T
181 TATAAAATTGTGCTGCAGCAATTATAATACAGAGATCTTGAAAAGTATTGATAATGAGTG
-----+-----+-----+-----+-----+-----+-----+
I K F A A A H Y N T E I L K S I D N E W
241 GAGAAAGACTCAATGCATGCCACGGAGGTGTGTATAGATGTGGGAAGGAGTTTGGAGT
-----+-----+-----+-----+-----+-----+-----+
R K T Q C M P R E V C I D V G K E F G V
301 CGCGACAAACACCTTCTTTAAACCTCCATGTGTGTCCGTCTACAGATGTGGGGGTGCTG
-----+-----+-----+-----+-----+-----+-----+
A T N T F F K P P C V S V Y R C G G C C

FIG. 2A

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361 CAATAGTGGGGCTGCAGTGCATGAACACCAGCAGCTACCTCAGCAAGACGTTATT
N S E G L Q C M N T S T S Y L S K T L F
421 TGAATTACAGTGCCCTCTCTCAAGGCCCCAACCAGTAACAATCAGTTTGGCCAATCA
E I T V P L S Q G P K P V T I S F A N H
481 CACTTCCTGCCGATGCATGTCTAAACTGGATGTTTACAGACAAGTTCATTCCATTATTAG
T S C R C M S K L D V Y R Q V H S I I R
541 ACGTTCCTGCCAGCAACACTACCACAGTGTGAGGCAGCGAACAAGACCTGCCCCACCAA
R S L P A T L P Q C Q A A N K T C P T N
601 TTACATGTGGAATAATCACATCTGCAGATGCCCTGGCTCAGGAAGATTTTATGTTTTCCTC
Y M W N N H I C R C L A Q E D F M F S S
661 GGATGCTGGAGATGACTCAACAGATGGATTCCATGACATCTGTGGACCAACAAGAGAGCT
D A G D D S T D G G F H D I C G P N K E L

FIG. 2B

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721 GGATGAAGAGACCTGTCAGTGTGTCTGCAGAGCGGGGCTTCGGCCCTGCCAGCTGTGGACC
D E E T C Q C V C R A G L R P A S C G P

781 CCACAAAGAACTAGACAGAACTCATGCCAGTGTGTCTGTAAACAACAACTCTTCCCCAG
H K E L D R N S C Q C V C K N K L F P S

841 CCAATGTGGGCCAACCGAGAATTGTATGAATAACACATGCCAGTGTGTATGTAAAGAAC
Q C G A N R E F D E N T C Q C V C K R T

901 CTGCCCCAGAAATCAACCCCTAAATCCTGGAAATGTGCTGTGAATGTACAGAAAGTCC
C P R N Q P L N P G K C A C E C T E S P

961 ACAGAAATGCTTGTAAAGGAAGAAGTTCACCACCAACATGCAGCTGTACAGACG
Q K C L L K G K K F H H Q T C S C Y R R

1021 GCCATGTACGAACCGCAGAGGCTGTGAGCCAGGATTTTCATATAGTGAAGAAGTGTG
P C T N R Q K A C E P G F S Y S E E V C

FIG. 2C

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1081	TCGTTGTGCCCTTCATATTGGCAAGACCACAAATGAGCTAAGATTGTA	TCTTCCCA	
	R C V P S Y W Q R P Q M S		
1141	GTTTCATCGATTTTCTATTATGGAAA	ACTGTGTTGCCACAGTAGAACTGCTCTGTGAACAGA	
1201	GAGACCCCTTGTTGGTCCCATGCTAACAAAGACA	AAAGTCTGTCTTTCCCTGAACCATGTGGA	
1261	TAACTTTACAGAAATGGACTGGAGCTC	ATCTGC	AAAGGCCCTCTTGTAAAGACTGGTTTT
1321	CTGCCAATGACCAAACAGCCAAGATTTTCCCTCTTG	TGATTTCTTTAAAGAAATGACTATA	
1381	TAAATTTATTTCCACTAAAAATATGTTTCTCGCAT	TTTTCATTTTATAGCAACAACAATTGCT	
1441	AAAAC	CTGATCAATATTTTATATCATGCAAAATATGTTTAA	AATGAA
1501	TTGTATTATAAAAA	AAAAA	

FIG. 2D

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```

1          50
Pdga .MRTLACLL LCCYLAVHL AEEAIPREV IERLARSQIH SIRDQLRLE
Pdgb MNRCWA.LFL SLCCYLRLVS AEGDPIPEEL YEMLSOHSIR SFDDLQRLH
Vegf .....MNFLL SWHWSLALL LY..... LHHAKWSQA
Vegf2 .....MTV LYPEYKMYK CQ..... LRKGGWQHIN

51          100
Pdga IDSVGSEDSL DTSRAHGVH ATKHVPEKRP LPIRRKRSI. ....EEAVP
Pdgb GDP.GEEDGA ELDLNMTRSH SGCELES... .LARGRRSLG SLTIAEPAMI
Vegf APMAE..... GCGQ NHHEVVKFMD .VYQR.....
Vegf2 REQANLSRT EETIKFAAAH YNTEILKSID NEWRK.....

101          150
Pdga AVCKTRTVIY EIPRSQVDPT SANFLIWPPC VEVKCTGCC NTSSVKQPS
Pdgb AECKTRTEVF EISRRLLDRT NANFLVWPPC VEVORCSGCC NNRNVQCRPT
Vegf SYCHPIETLV DIFQEYPDEI ..EYIFKPSC VPLMRCCGCC NDEGLECVPT
Vegf2 TQCMPREVCI DVGKEFGVAT ..NTFFKPPC VSVYRCGGCC NSEGLQCMNT

151          200
Pdga RVHHRSVKVA KVEYVRKKPK LKEVQVRLEE HLEQAC..... AT.....
Pdgb QVQLRPVQVR KIEIVRKKPI FKKATVTLED HLACKC..... ETVAAARPVT
Vegf EESNITMQIM RIK.PH..QG QHIGEMSFLQ HNKCECRPKK DRARQEKKS
Vegf2 STSYLSKITLF EIT.VPLSQG PKPVTISFAN HTSCRCMSKL DVYRQVHSII

```

FIG. 3A

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```

201          TSLNPD YREEDTDVR.          ..... DKTALKETLG          250
Pdgha ..... RSPGCSQEQ AKTPQTRVTI RTVRVRPPK GKHRKFKHTH
Pdghb ..... RSK ..... GKQKRKRK KSRYSWSVY VGARCCCLMPW SLPCPHP ...
Vegf RSK ..... CQANKTCPT NYMNNHICR CLAQEDFMFS SDAGDDSTDG
Vegf2 RSLPATLPQ CQANKTCPT NYMNNHICR CLAQEDFMFS SDAGDDSTDG

251          .....          300
Pdgha .....          .....
Pdghb A.....          ..... CSE RRKHLFVQDP QTCKCCKNT
Vegf ..... CGP ..... RSK ..... CQANKTCPT NYMNNHICR CLAQEDFMFS SDAGDDSTDG
Vegf2 FHDICGNKE LDEETCQVC RAGLRPASCG PHKEL...DR NSCQCVCCKNK

301          .....          350
Pdgha .....          .....
Pdghb .....          .....
Vegf ..... DSRCKARQ LELNERTCRC DKPRR.....
Vegf2 LFPSQCCANR EFDENTCQC VCKRTCPRNQ PLNPGKCACE CTESPOKCLL

351          .....          398
Pdgha .....          .....
Pdghb .....          .....
Vegf .....          .....
Vegf2 KGKKFHHQTC SCYRRPCTNR QKACEPGFSY SEEVCRCPVS YWQRPQMS

```

FIG. 3B

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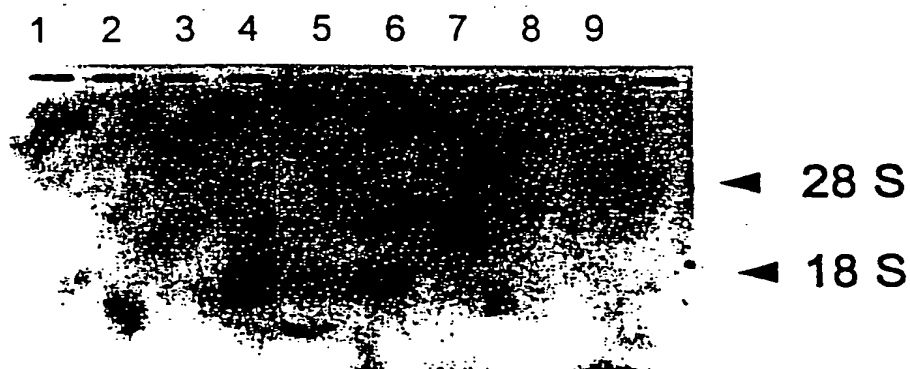
PERCENTAGE (%) OF AMINO ACID IDENTITIES BETWEEN EACH PAIR OF GENES IS SHOWN IN THE FOLLOWING TABLE				
	PDGF α	PDGF β	VEGF	VEGF2
PDGF α				
PDGF β	48.0			
VEGF	20.7	22.7		
VEGF2	23.5	22.4	30.0	

FIG.4

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BEST AVAILABLE COPY

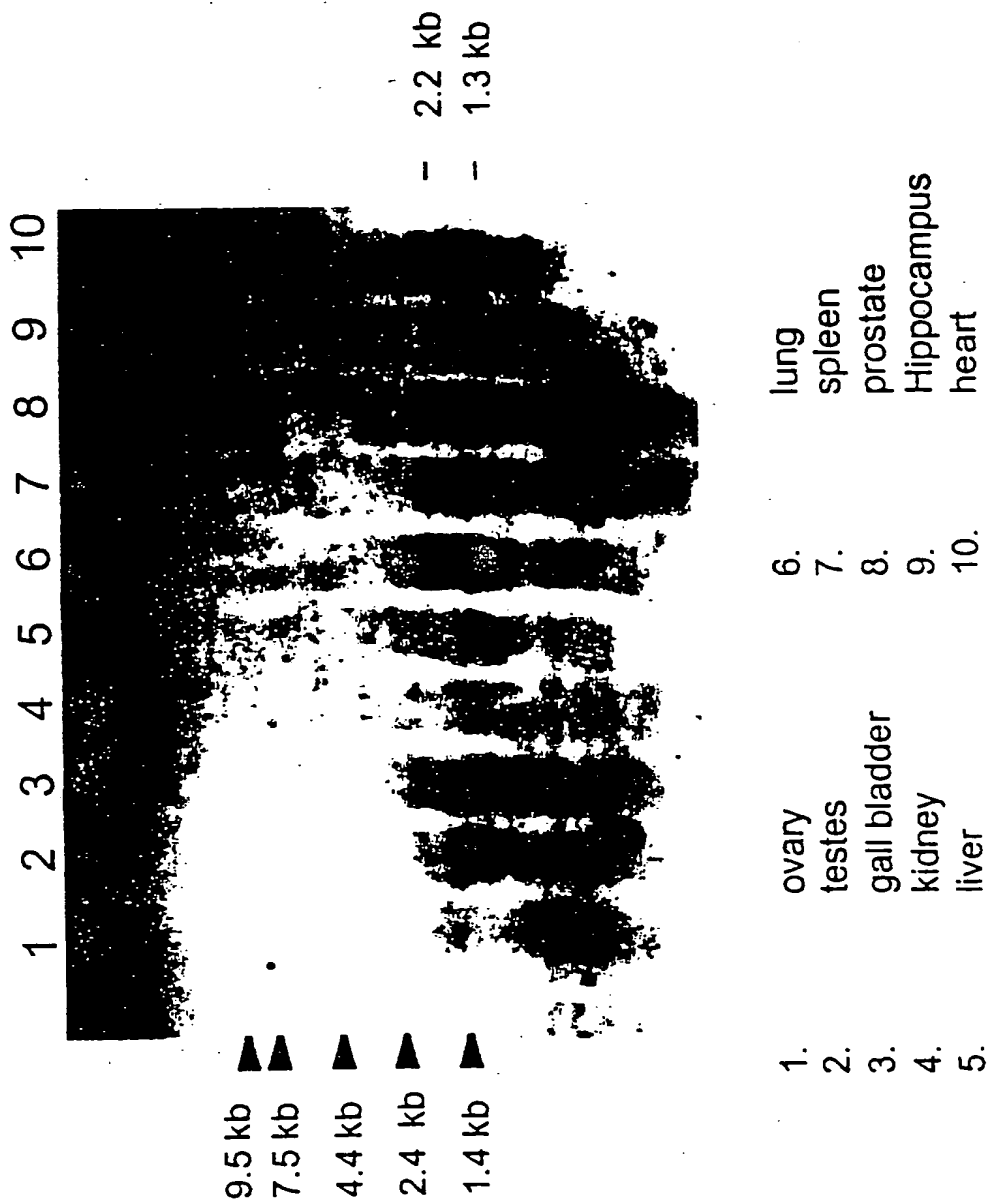
**Expression of VEGF2 mRNA in
Human Breast Tumor Cells**



Lane 1. normal breast tissue
Lane 2. breast tumor tissue
Lane 3-9. breast tumor cell lines.

FIG.5

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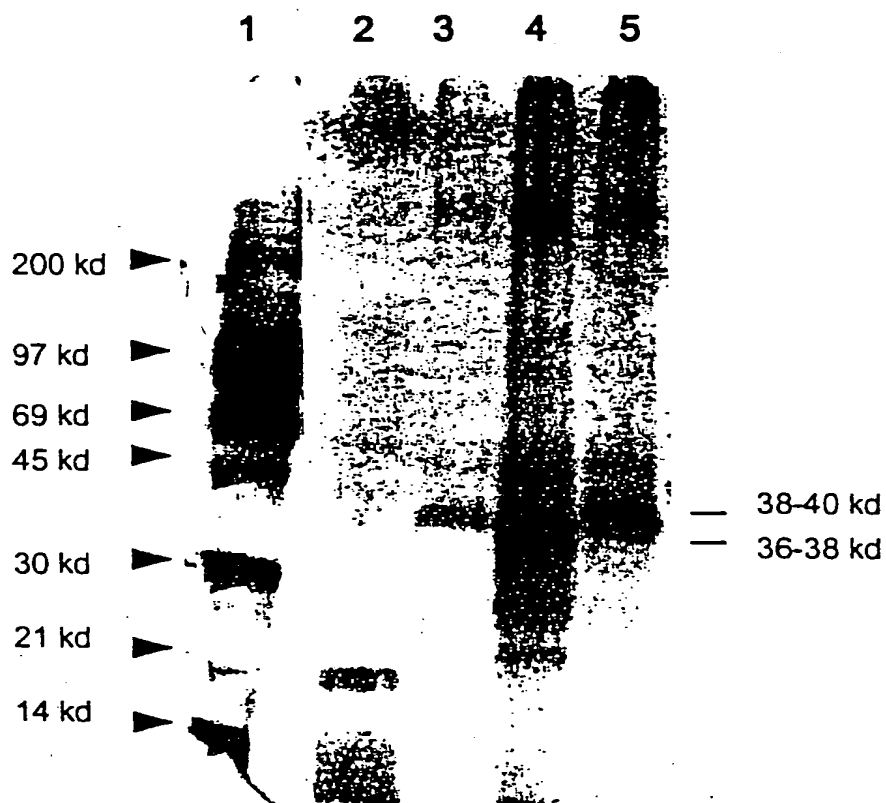


Expression of VEGF2 mRNA in human adult tissues.

FIG.6

BEST AVAILABLE COPY

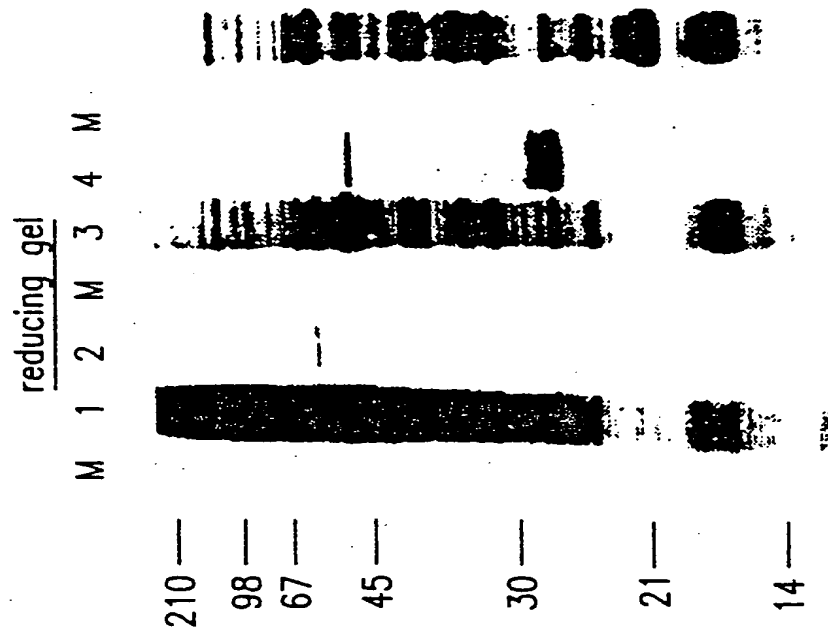
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Lane 1: 14-C and rainbow M.W. marker
Lane 2: FGF control
Lane 3: VEGF2 (M13-reverse & forward primers)
Lane 4: VEGF2 (M13-reverse & VEGF-F4 primers)
Lane 5: VEGF2 (M13-reverse & VEGF-F5 primers)

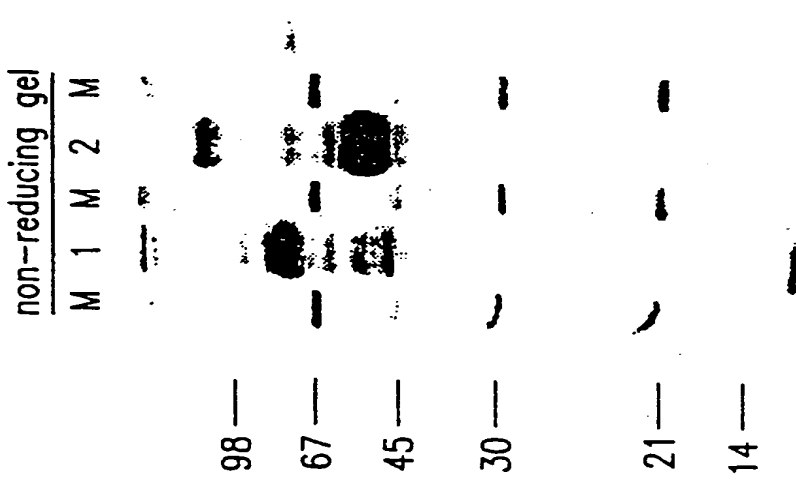
FIG.7

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Lane M: Marker
Lane 1: vector Cytoplasm
Lane 2: vector medium
Lane 3: VEGF2 Cytoplasm
Lane 4: VEGF2 medium

FIG.8B



Lane M: Marker
Lane 1: vector medium
Lane 2: VEGF2 medium

FIG.8A

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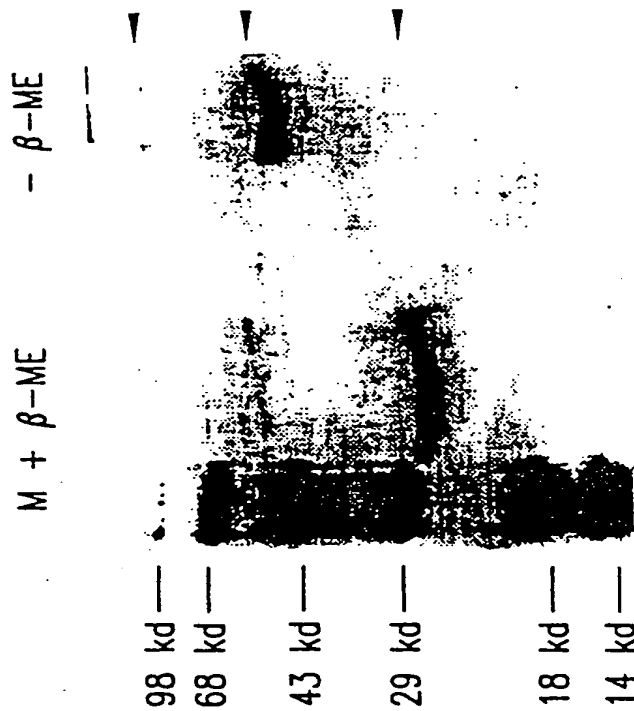


FIG.10



FIG.9

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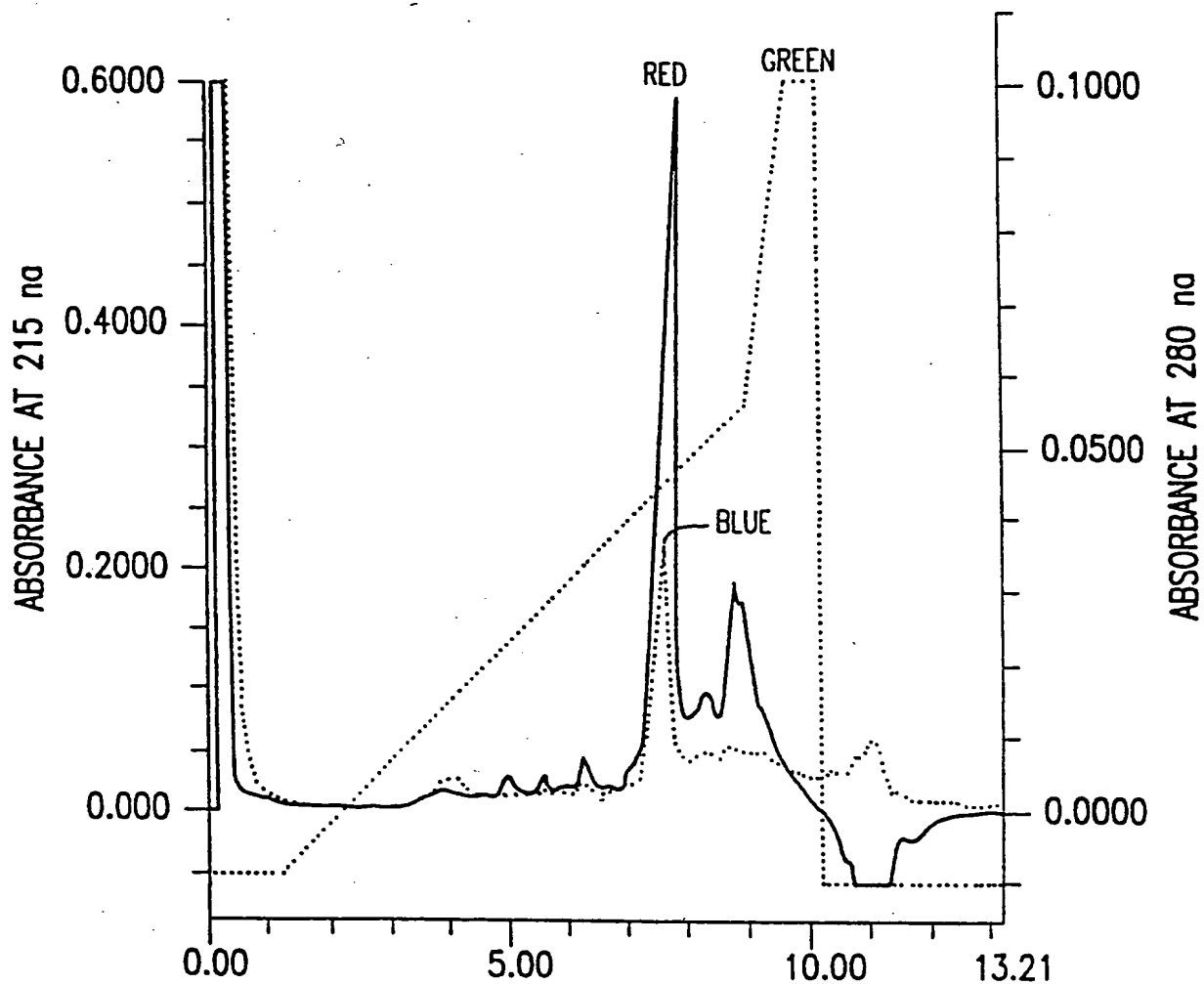


FIG. 11

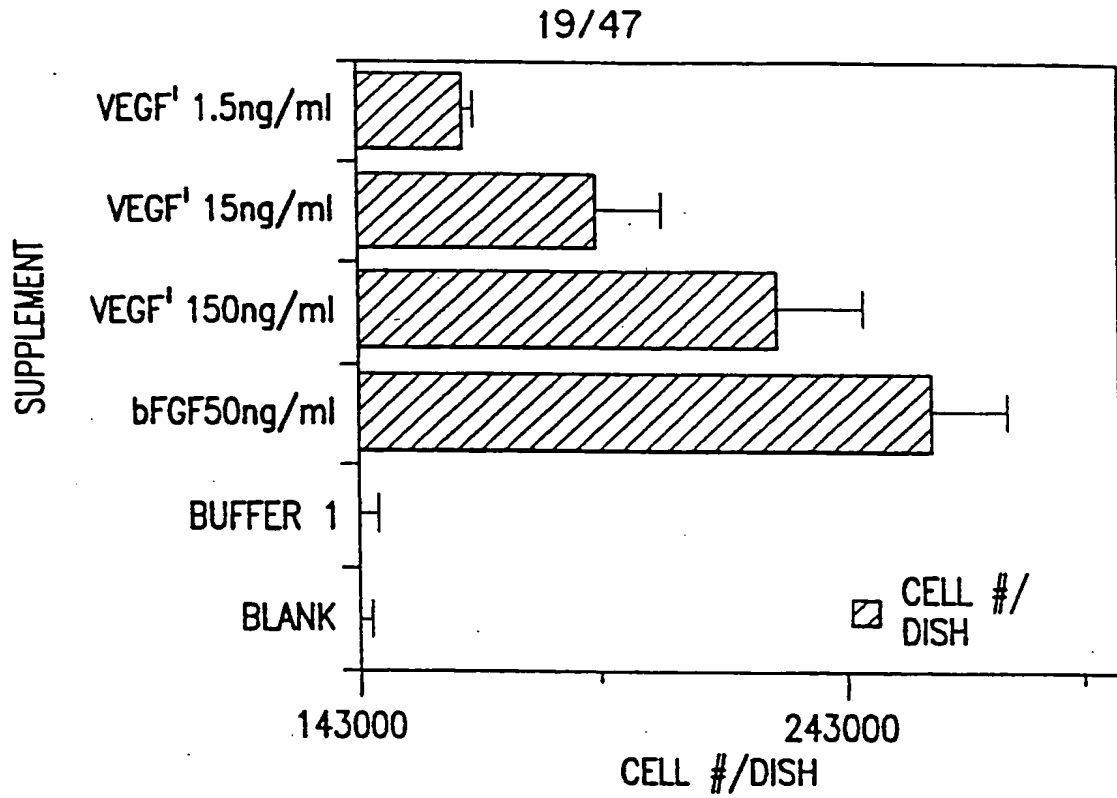


FIG.12

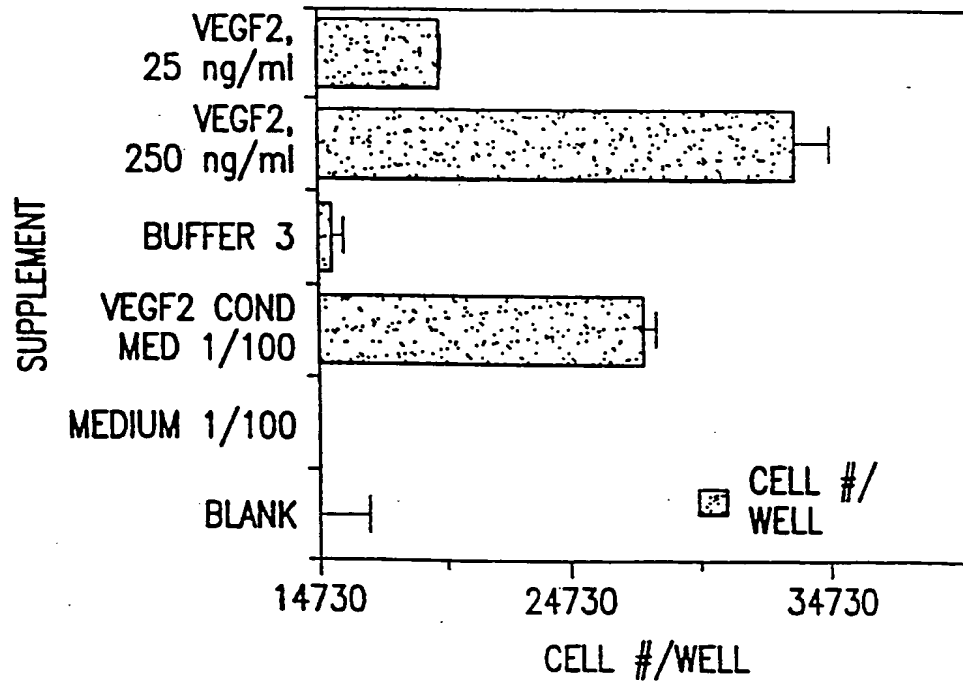


FIG.13

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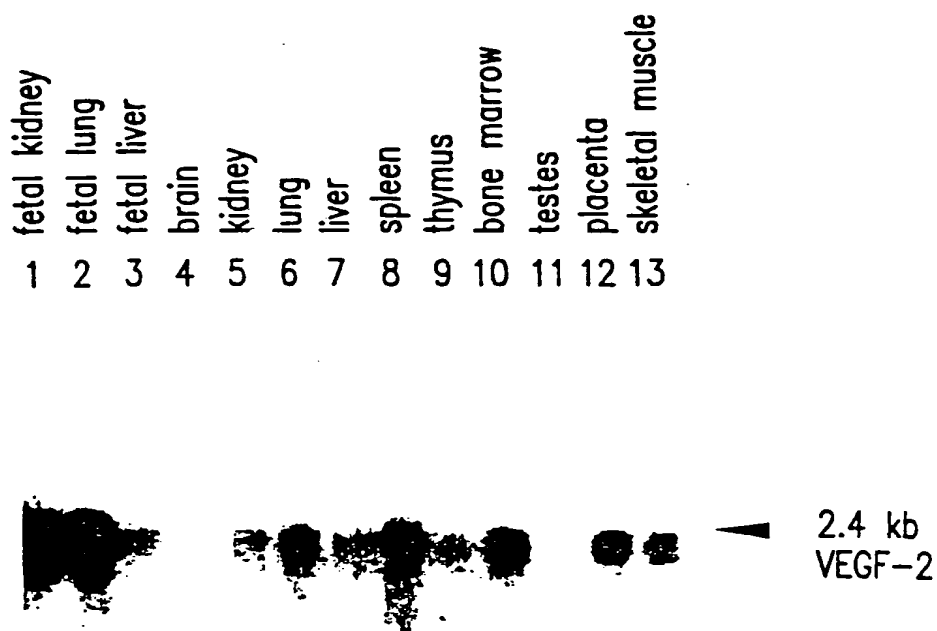


FIG.14A

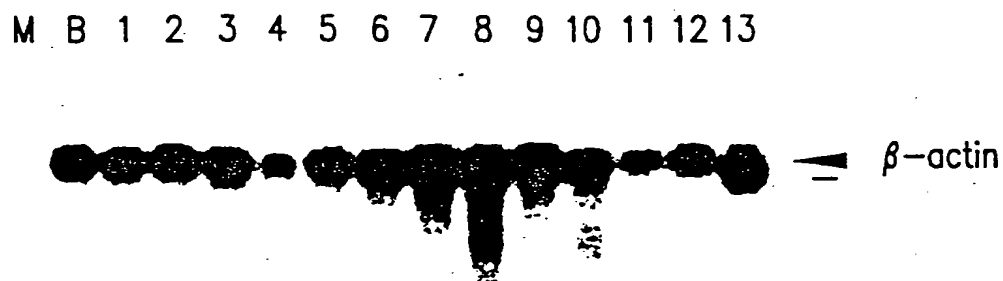
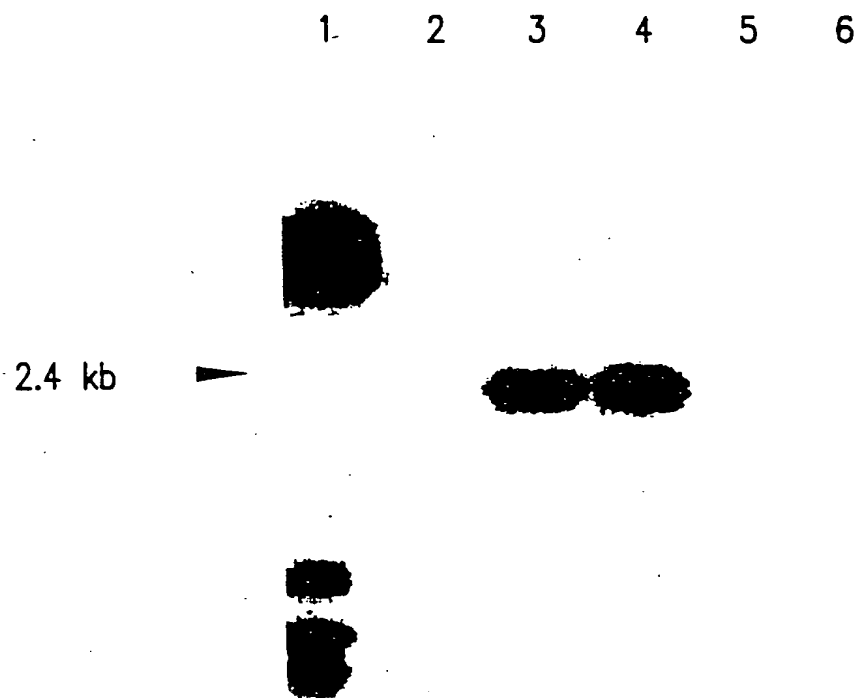


FIG.14B

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1. Molecular Weight Marker
2. umbelical vein endothelial cells
3. aortic smooth muscle cells
4. Dermal fibroblast

FIG.15

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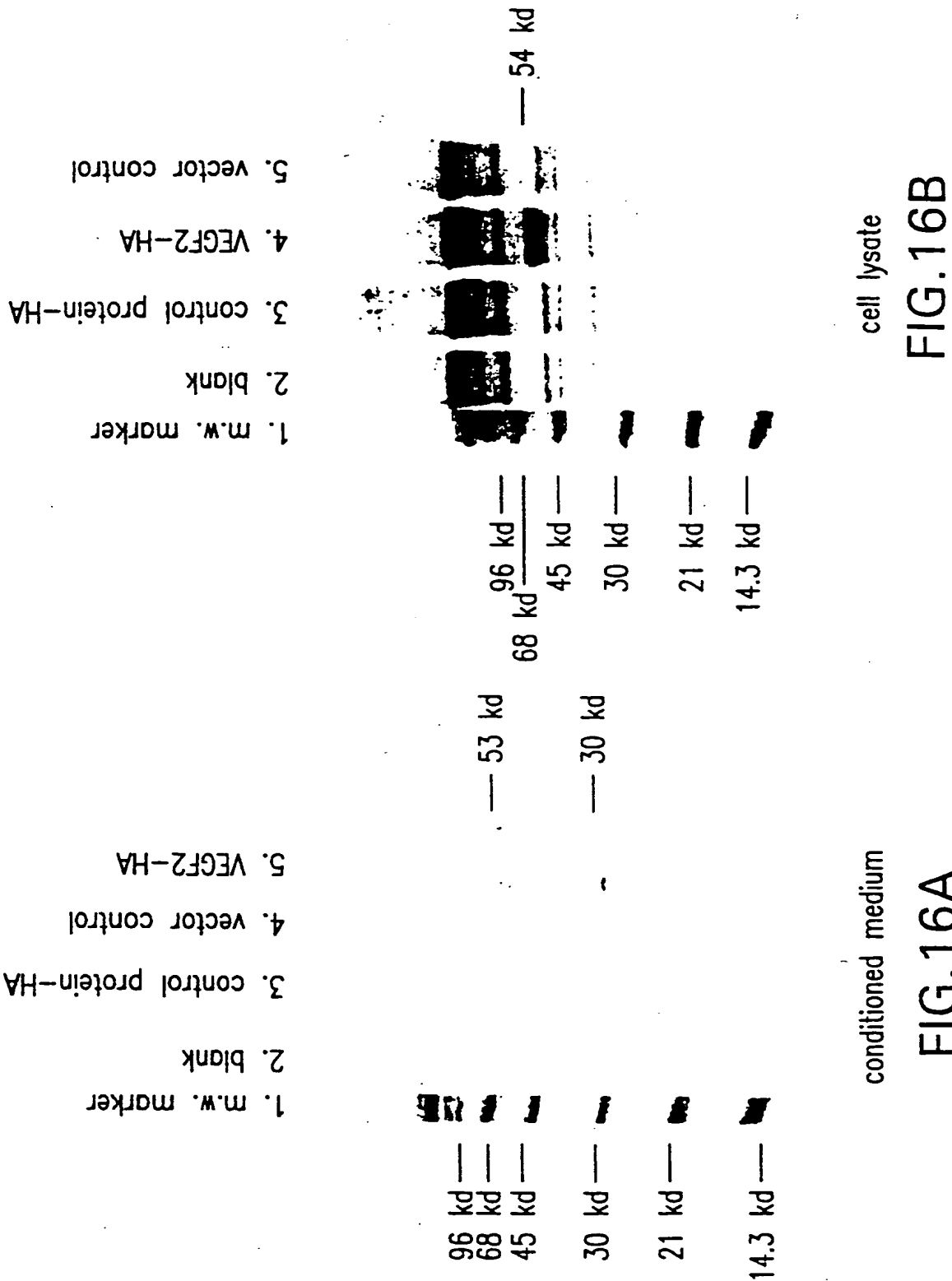


FIG.16A

FIG.16B

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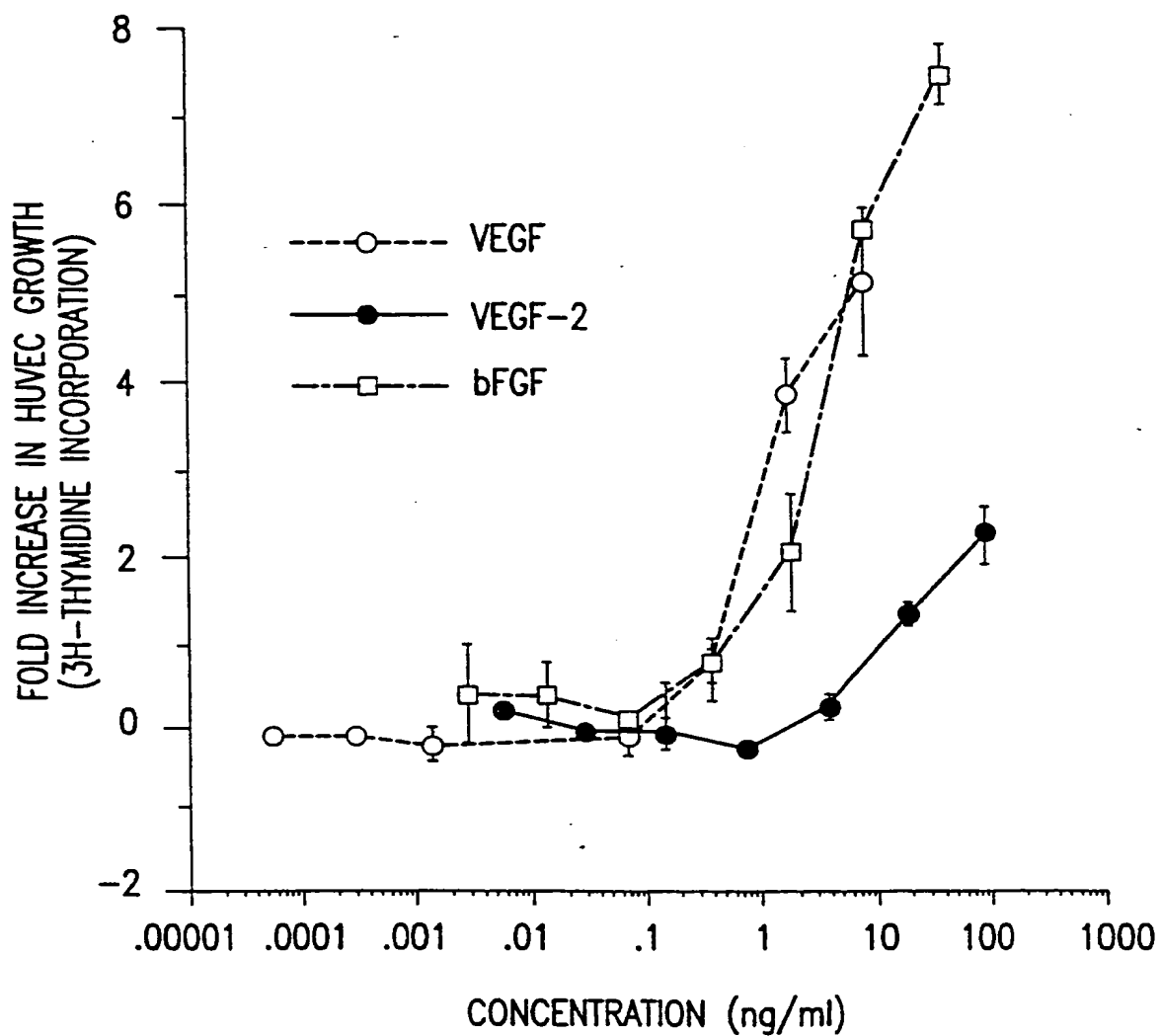


FIG.17

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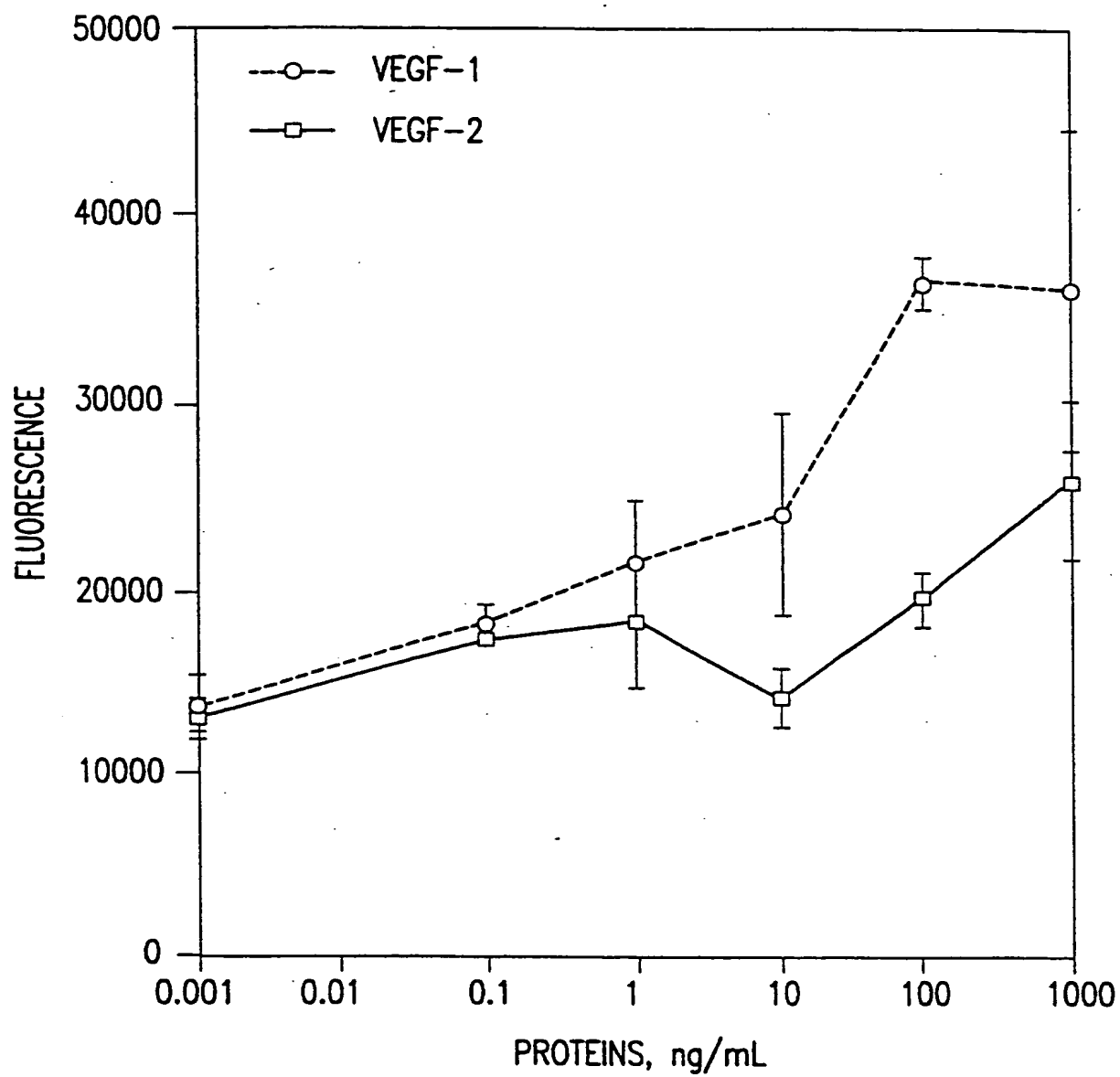


FIG.18

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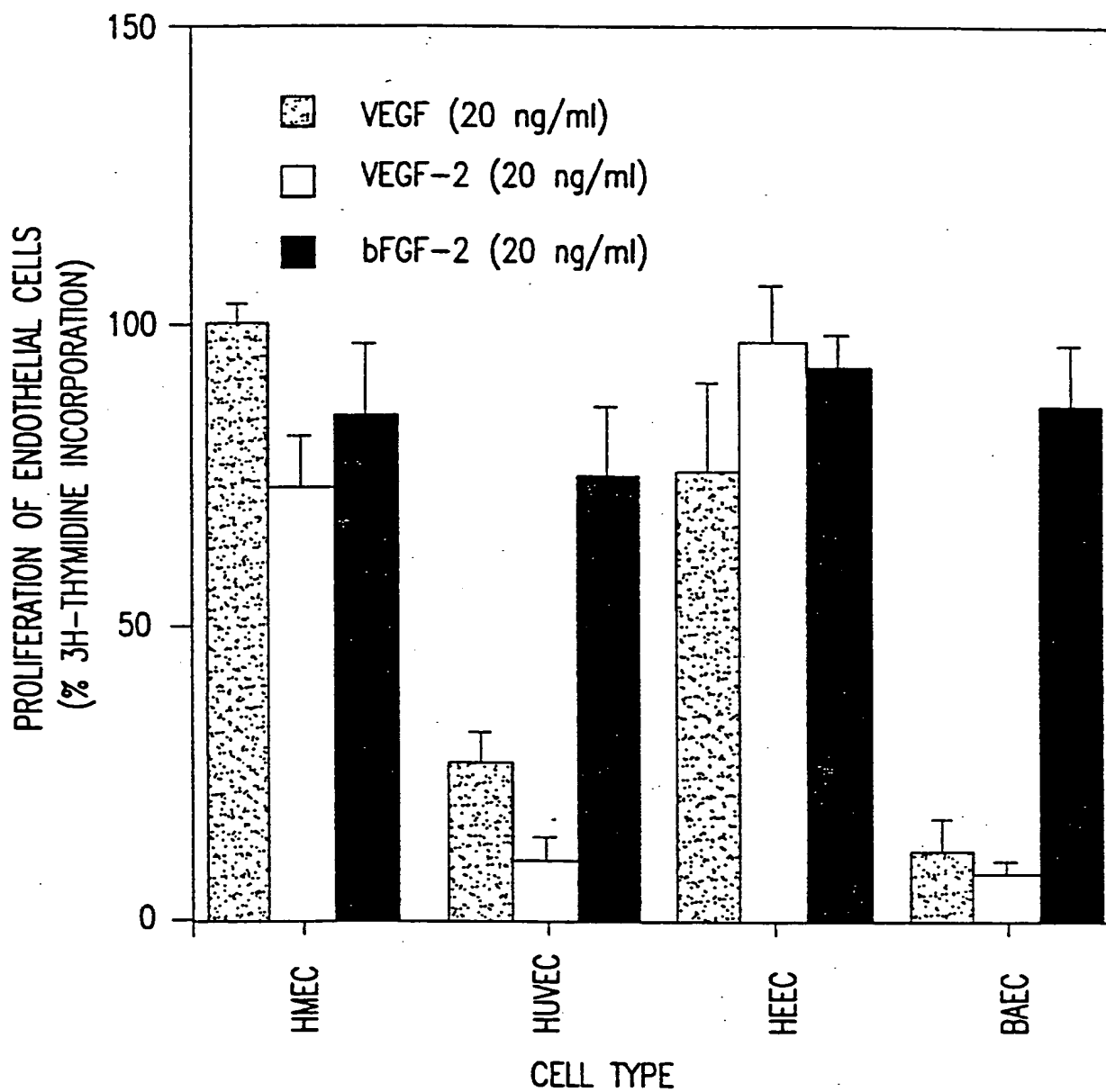


FIG.19

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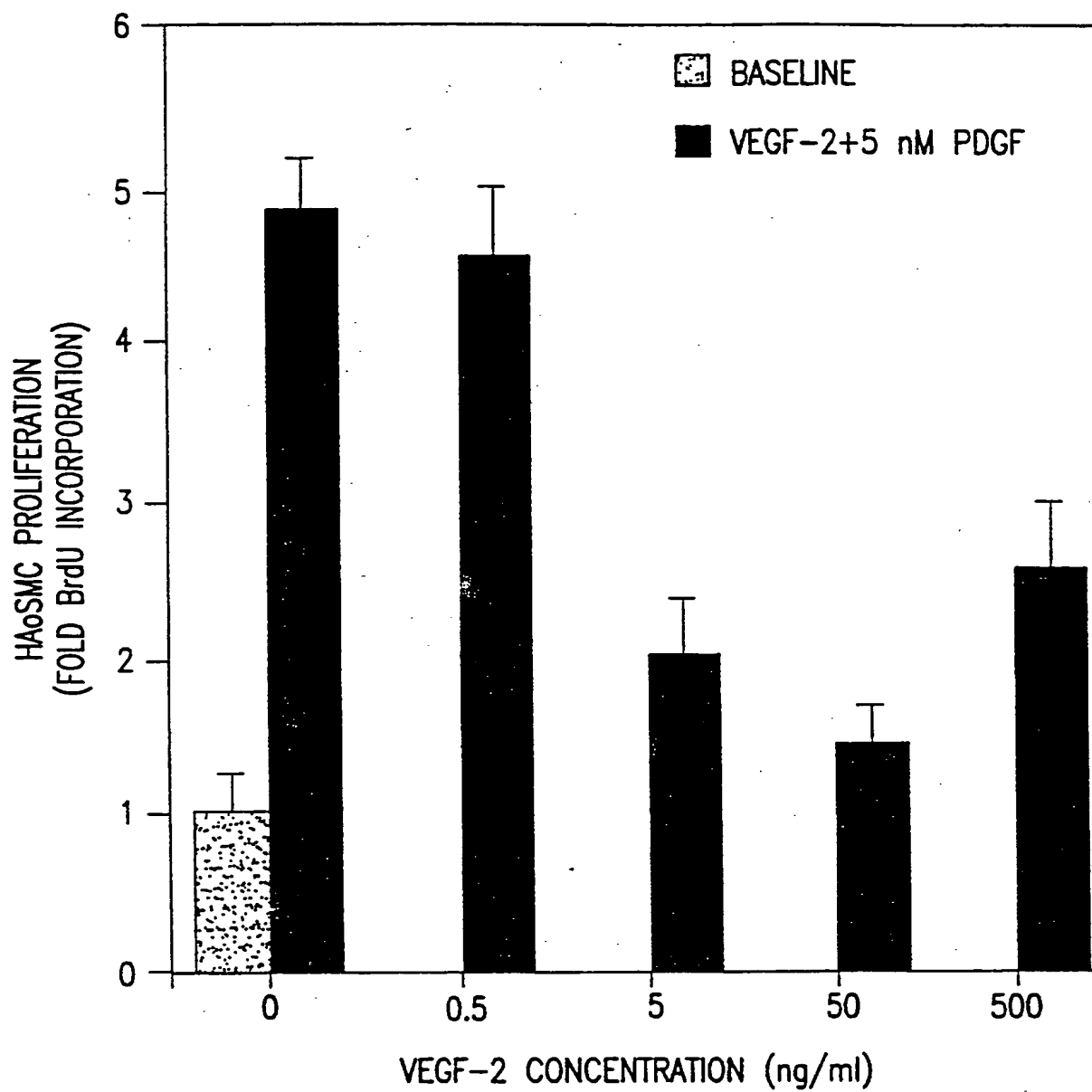


FIG.20A

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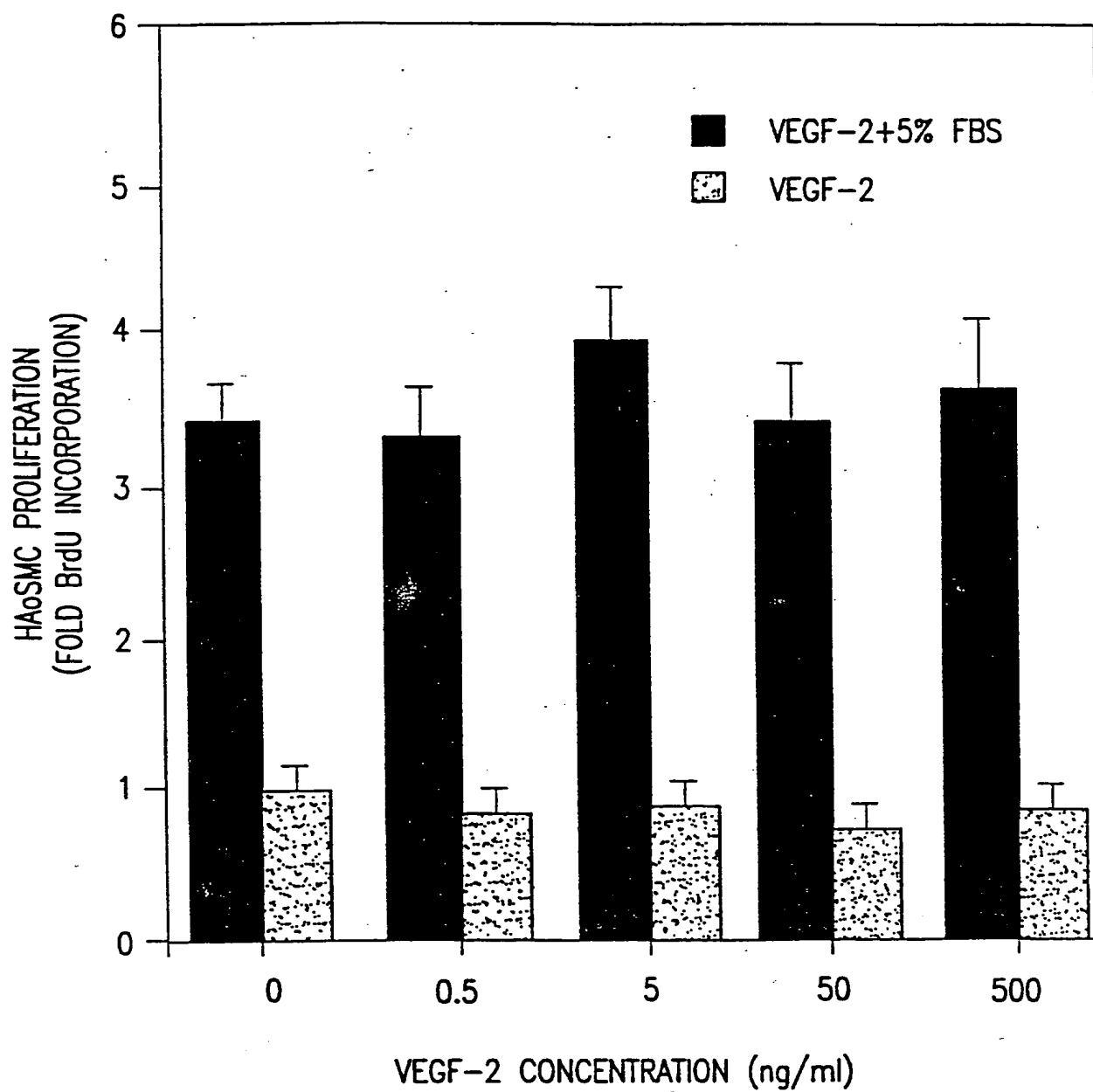


FIG.20B

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HUVEC MIGRATION

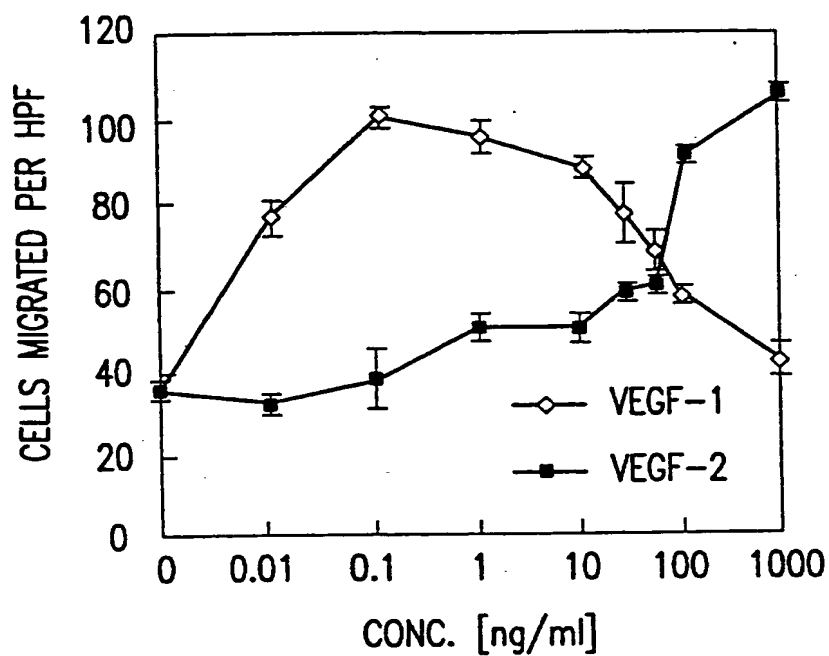


FIG.21A

BMEC MIGRATION

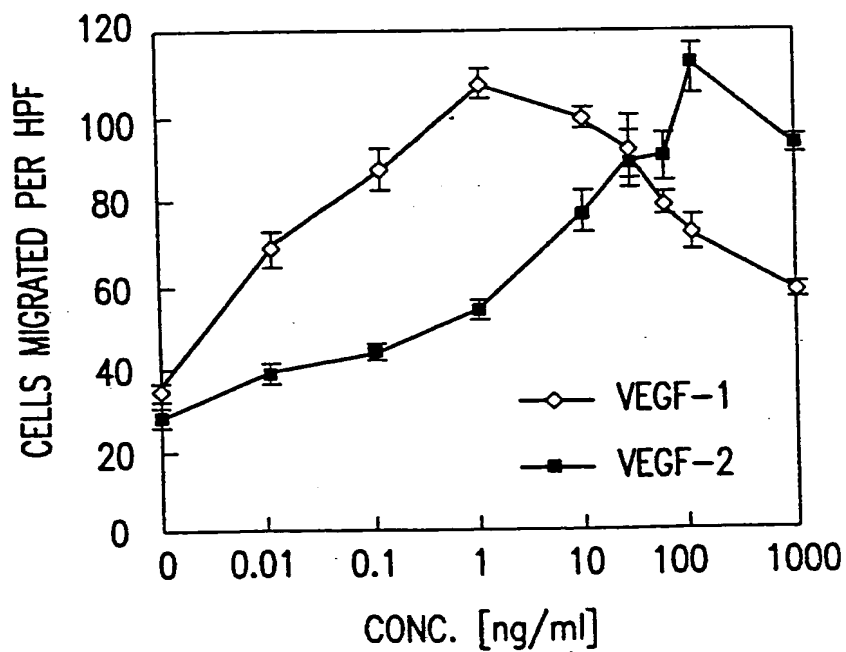


FIG.21B

SUBSTITUTE SHEET (RULE 26)

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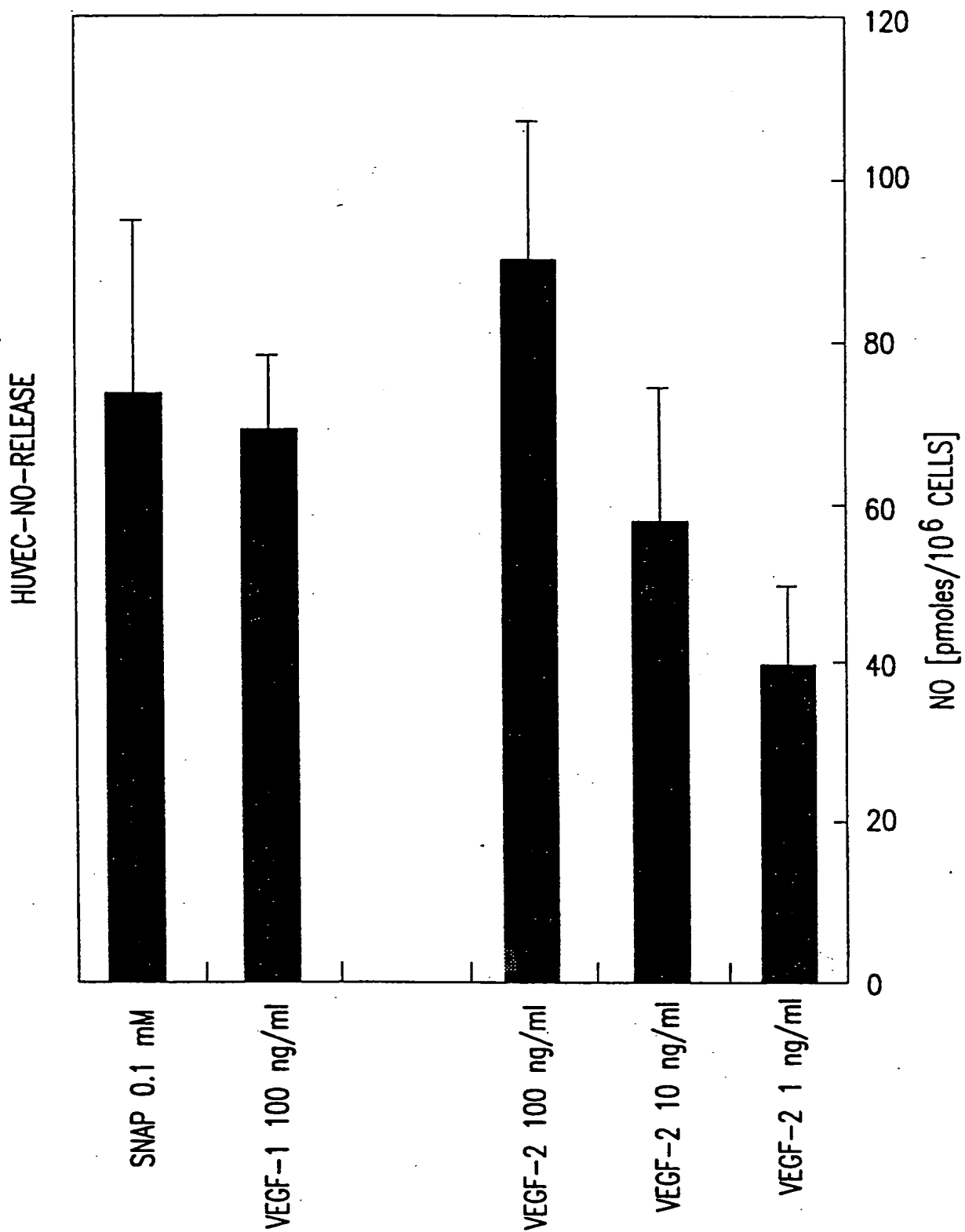


FIG.22

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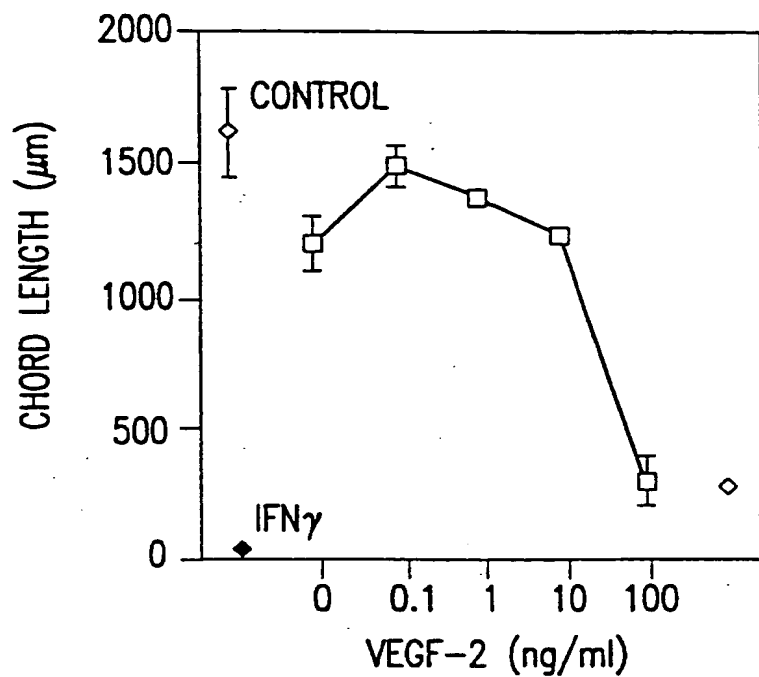


FIG.23

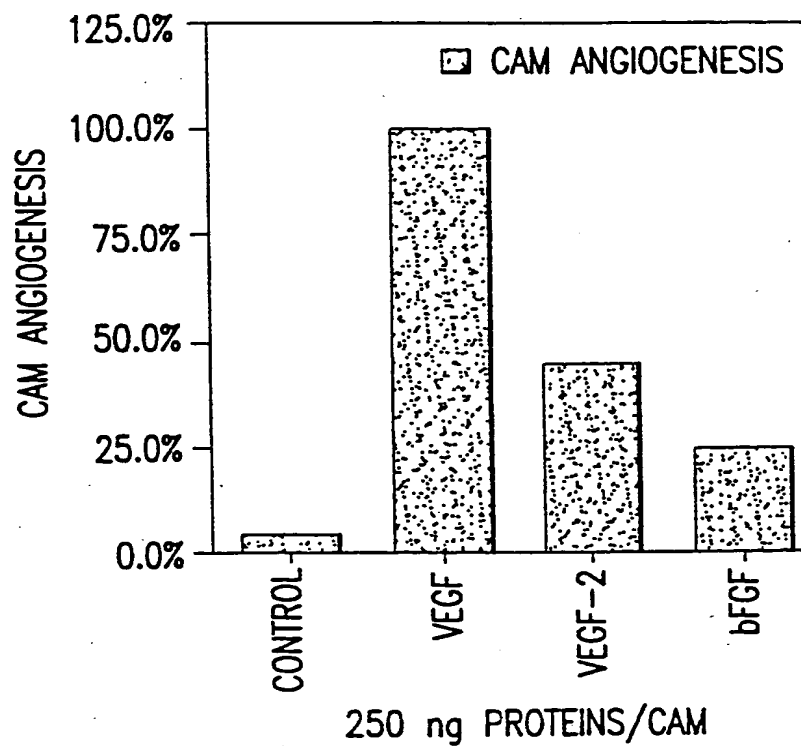


FIG.24

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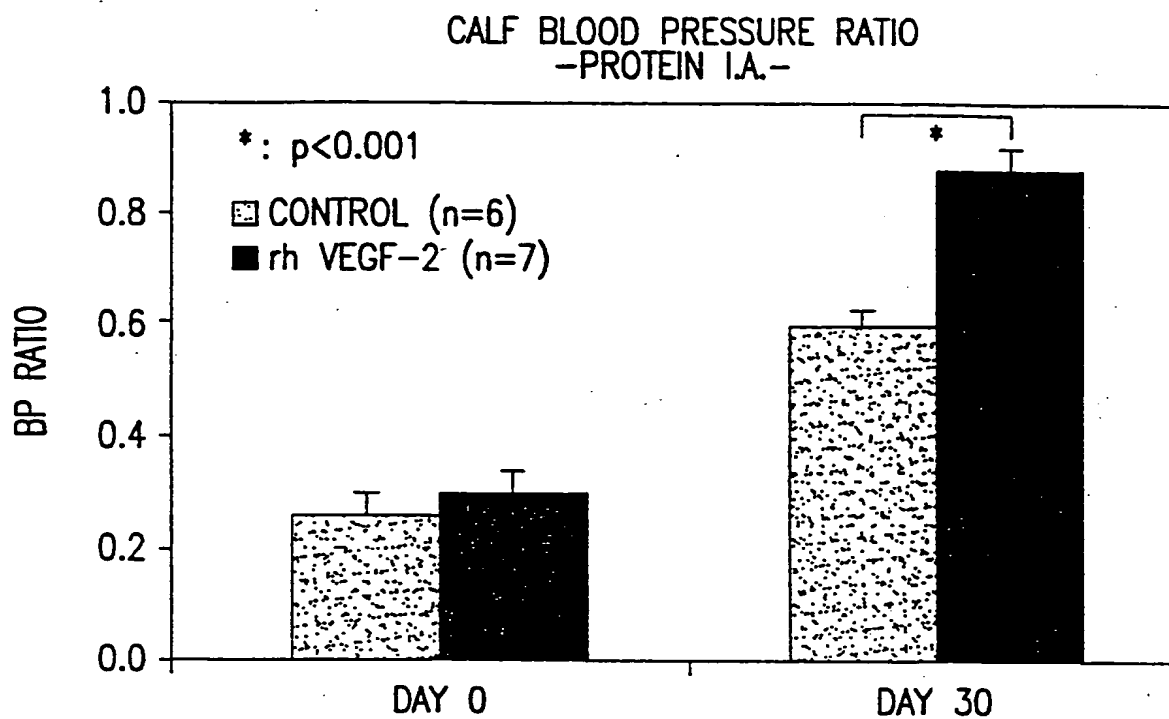


FIG.25A

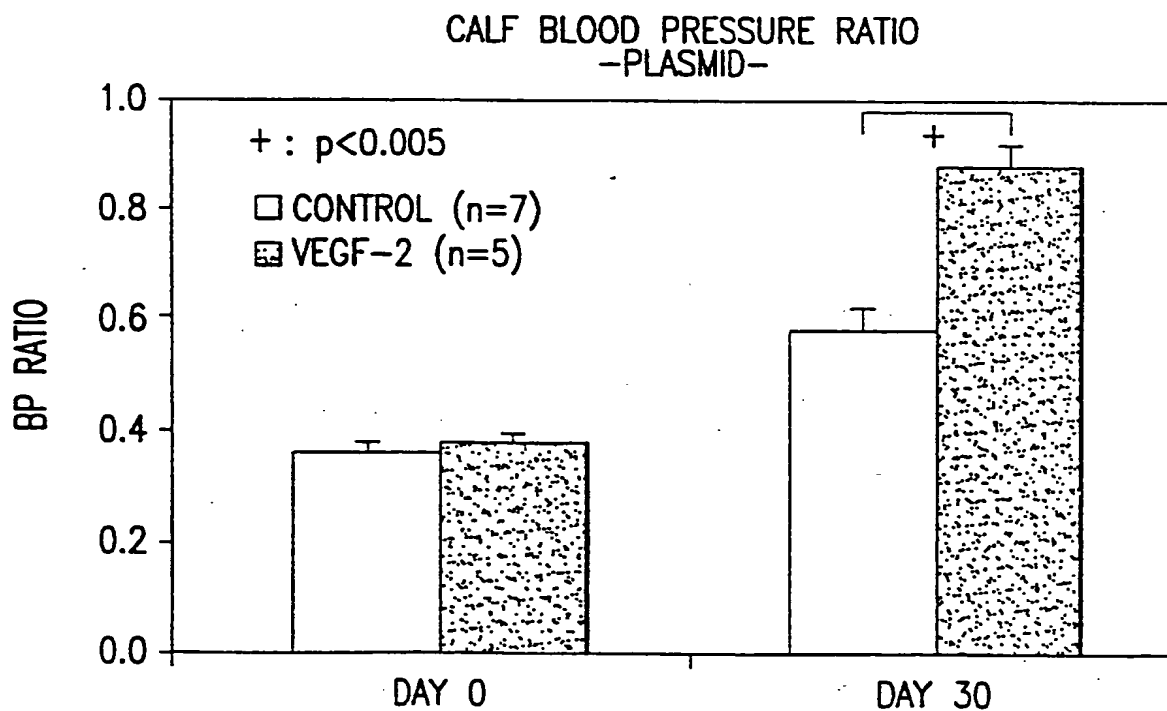


FIG.25B

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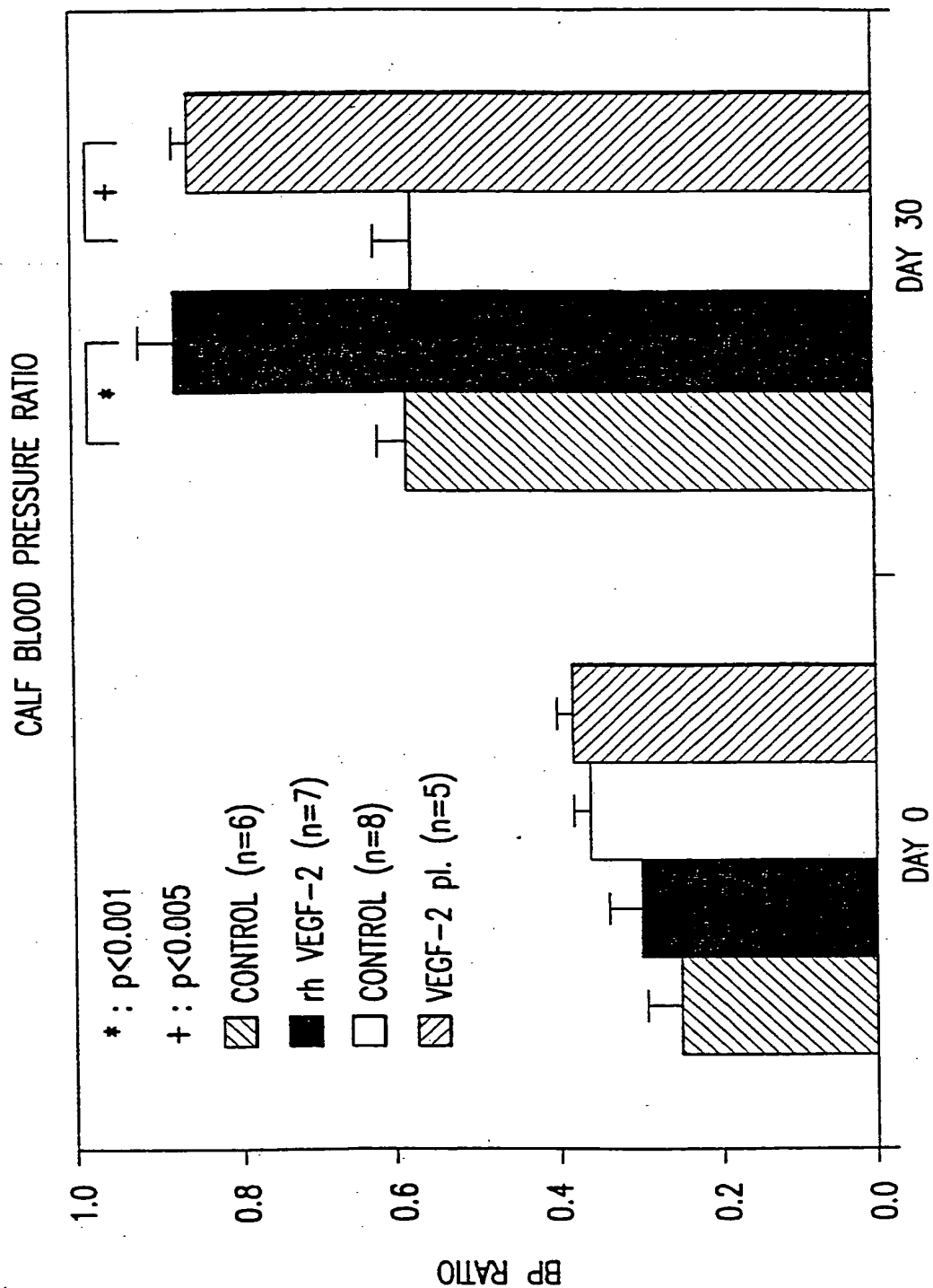


FIG.25C

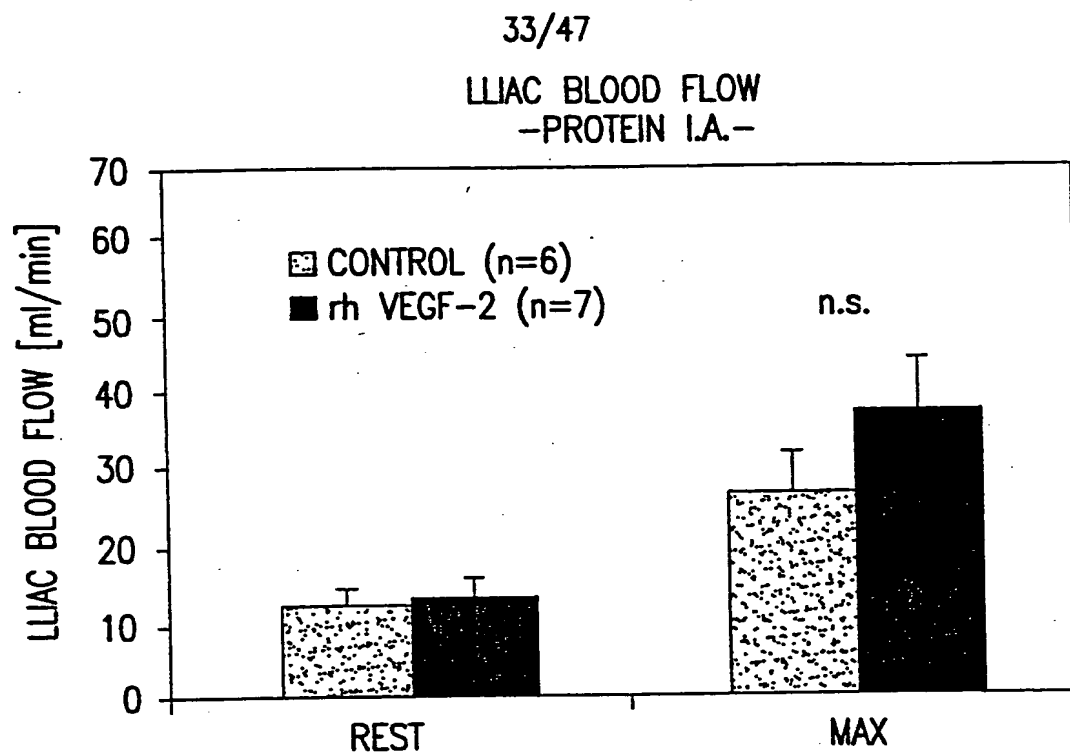


FIG.25D

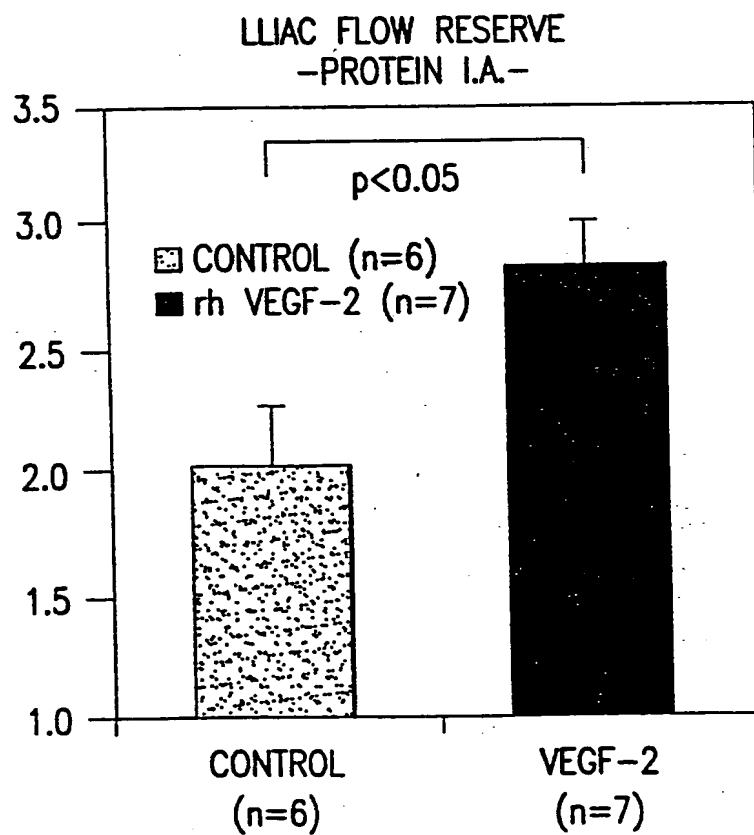


FIG.25E

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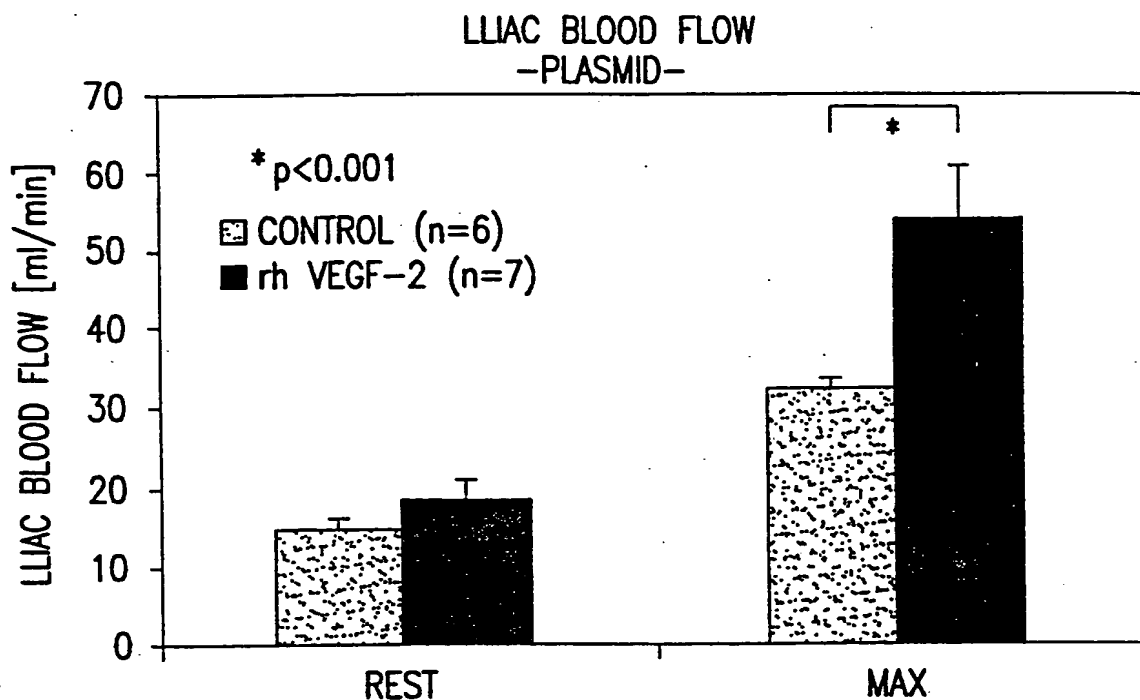


FIG.25F

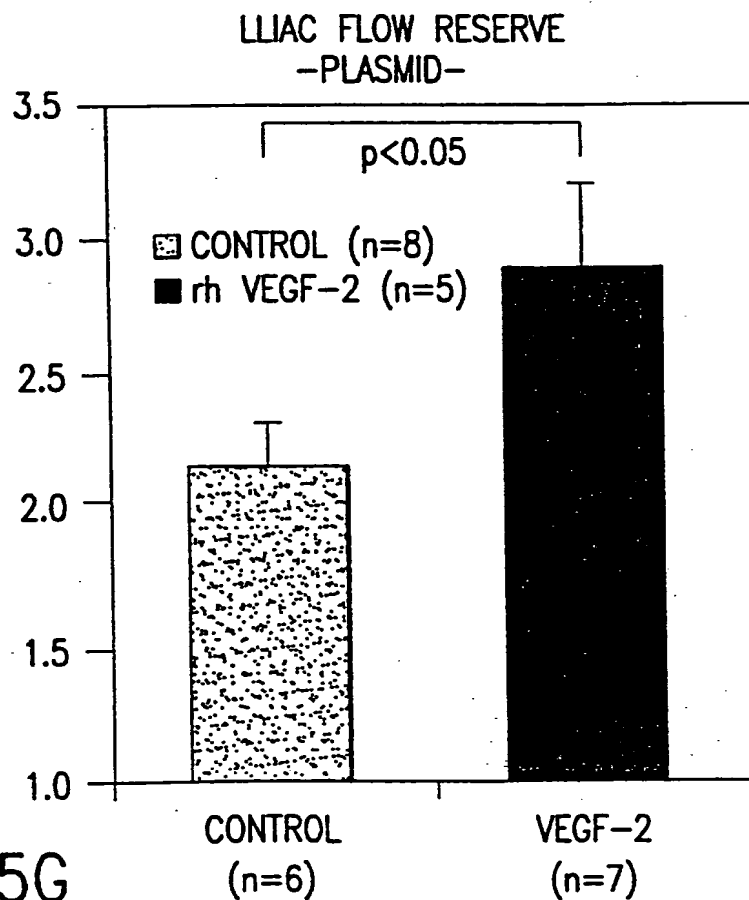


FIG.25G

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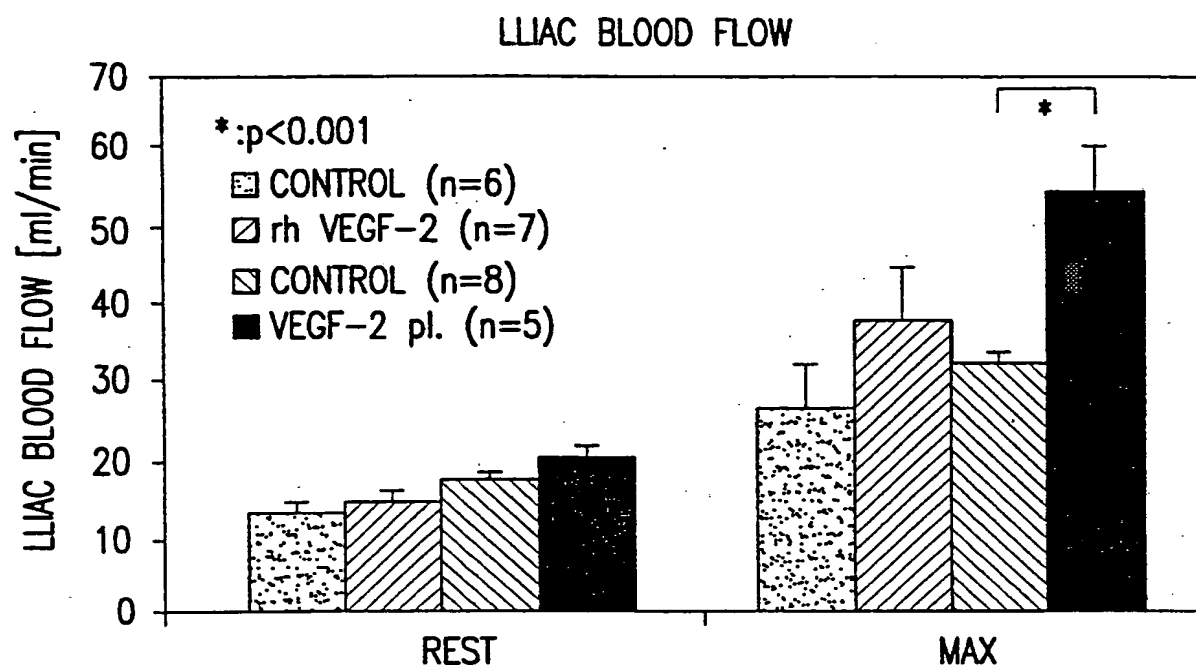


FIG.25H

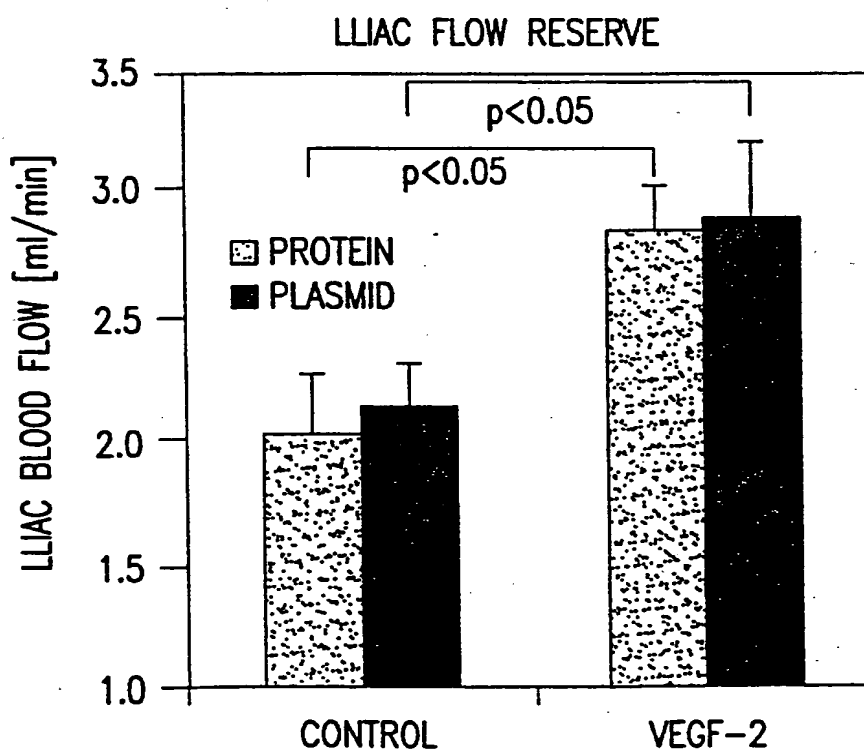


FIG.25I

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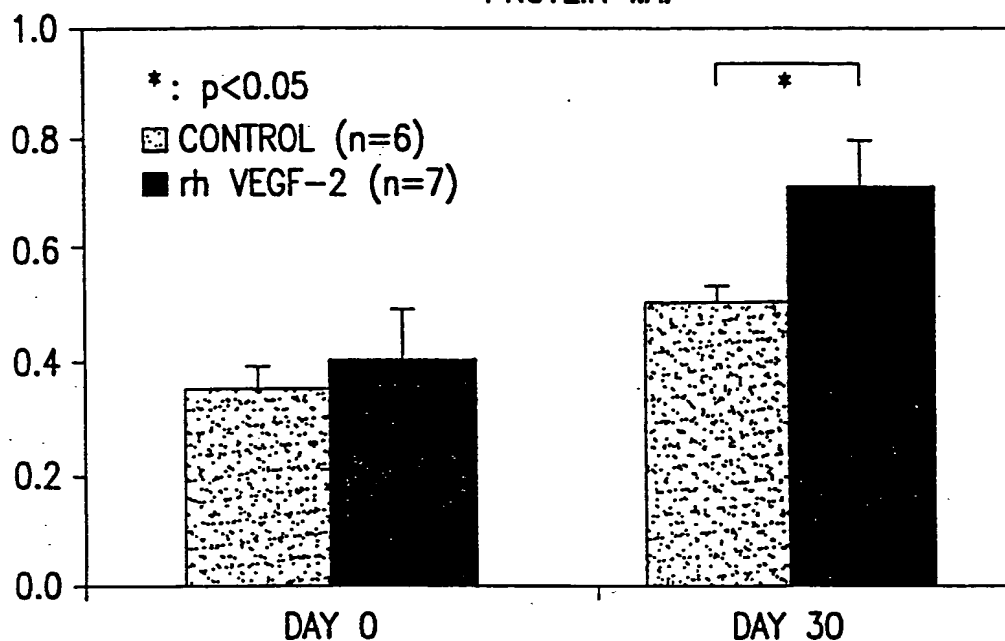
ANGIOGRAPHIC SCORE
-PROTEIN I.A.-

FIG.25J

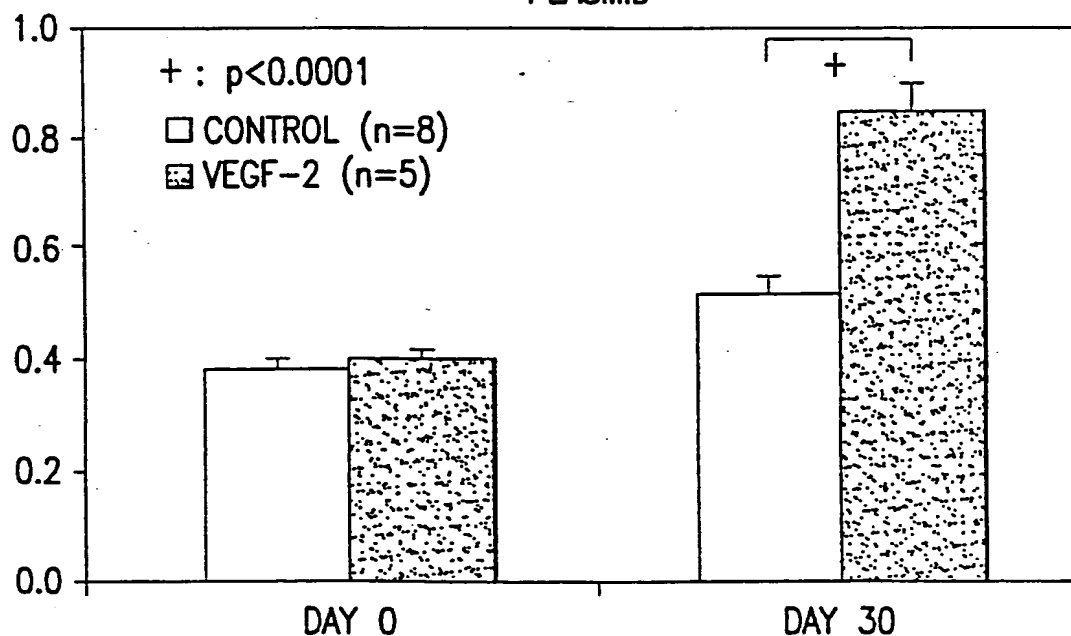
ANGIOGRAPHIC SCORE
-PLASMID-

FIG.25K

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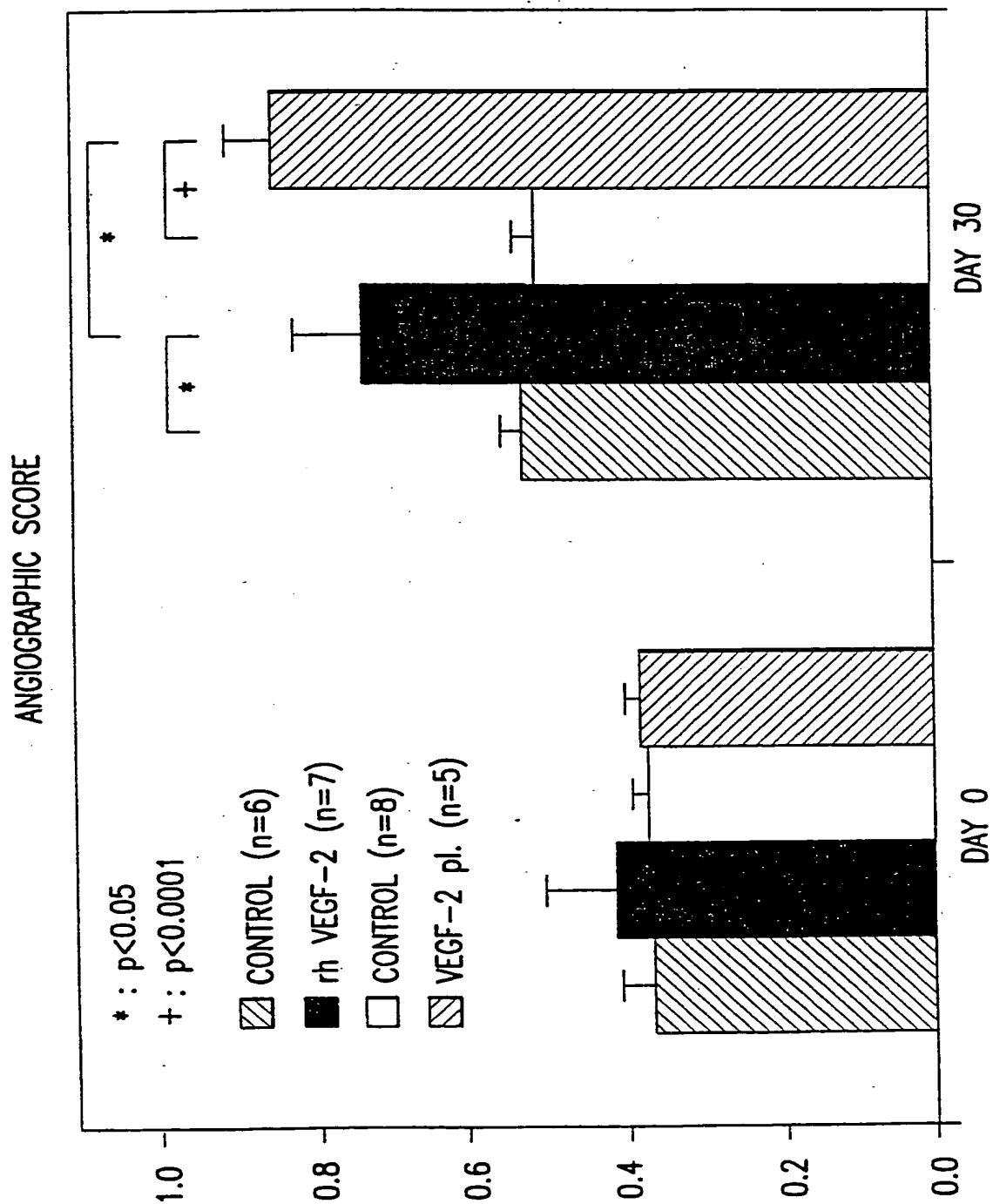
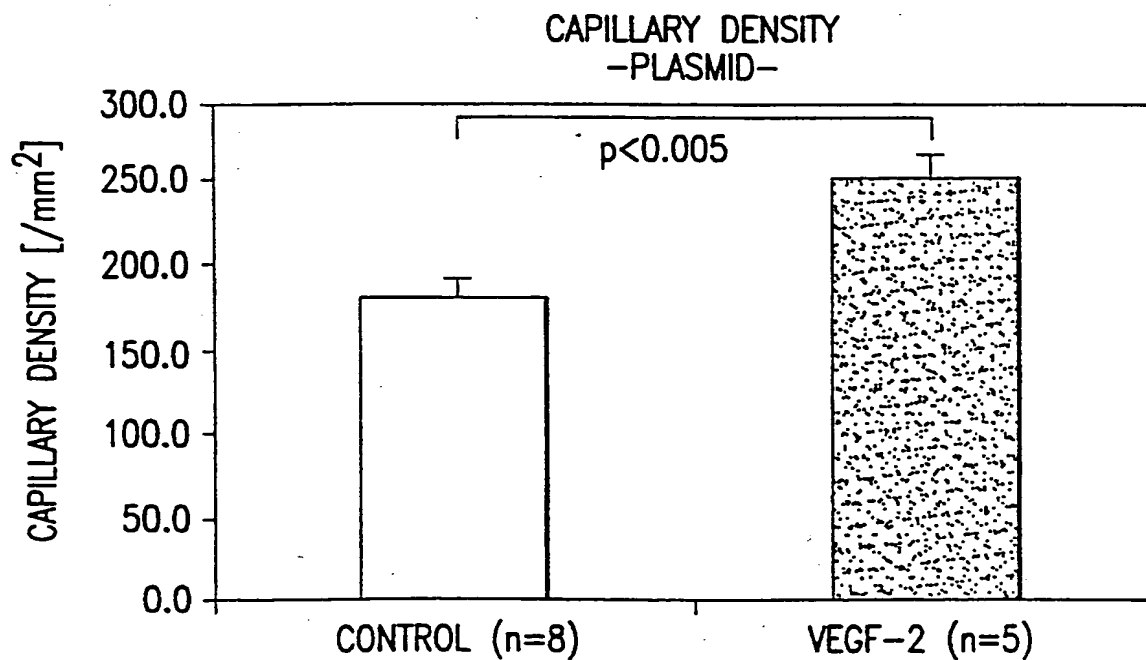
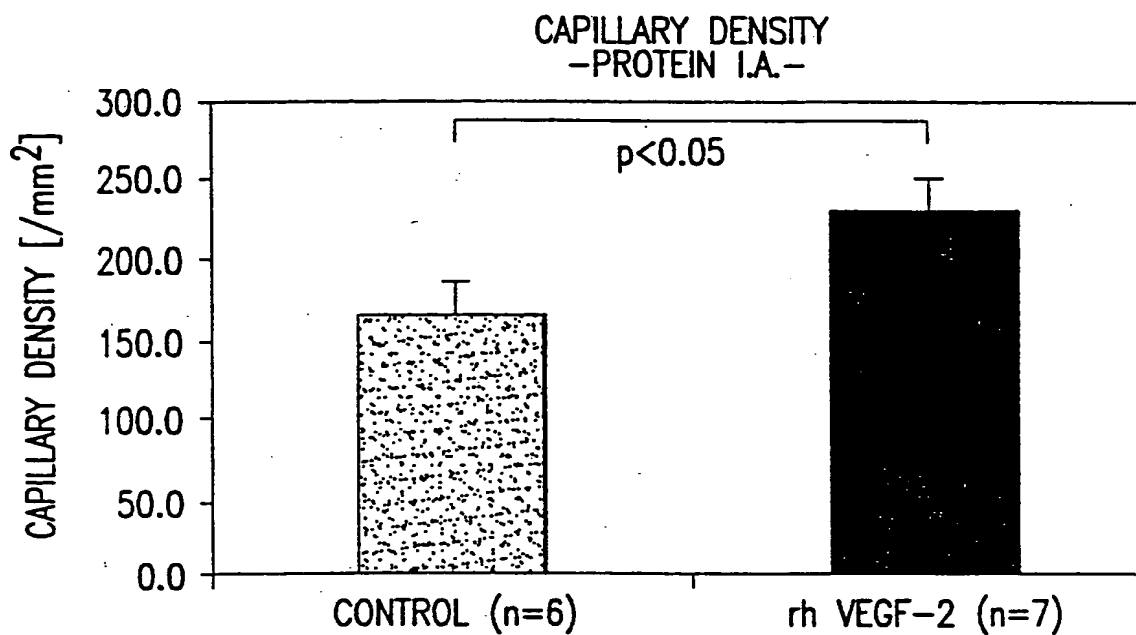
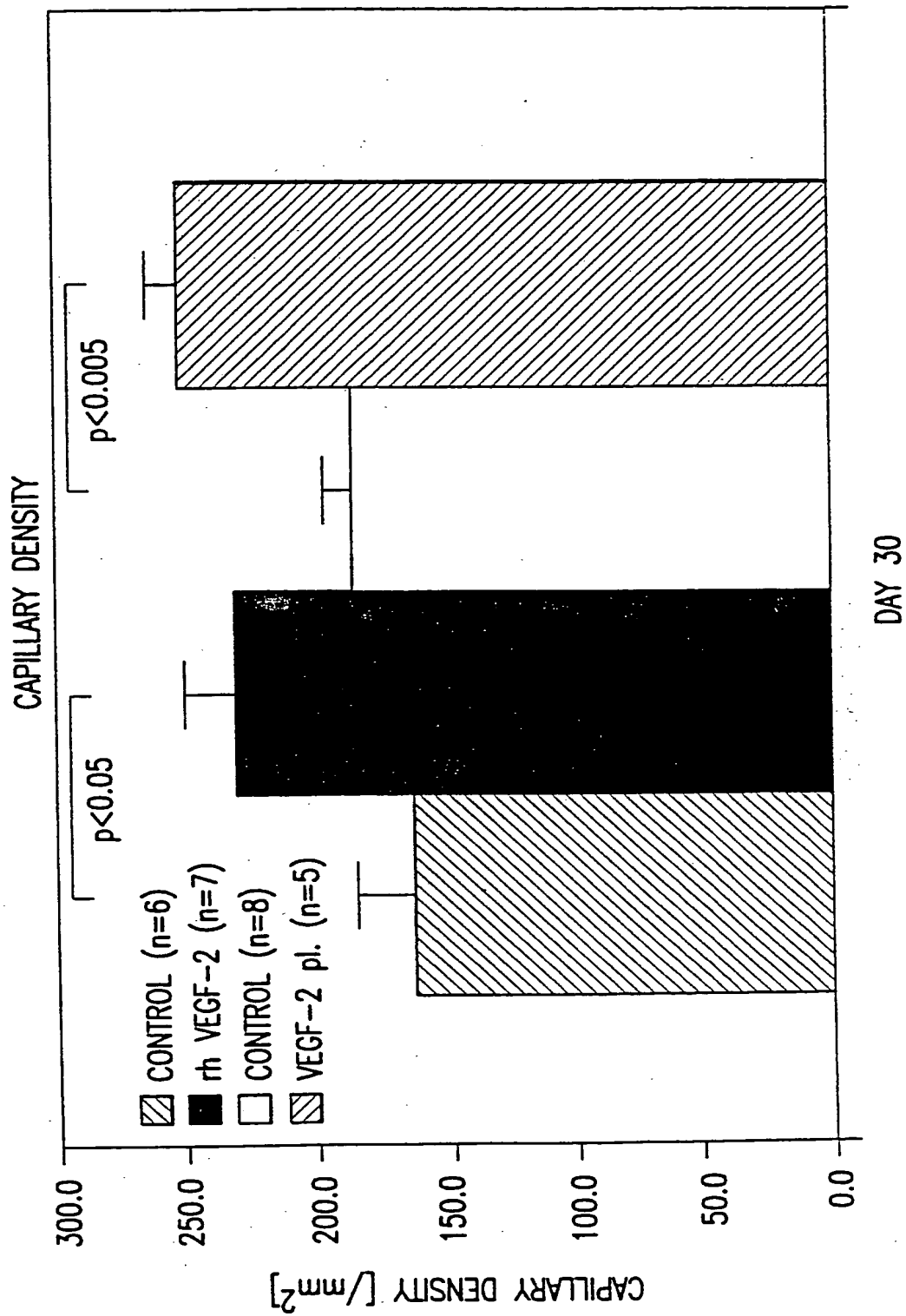


FIG.25L

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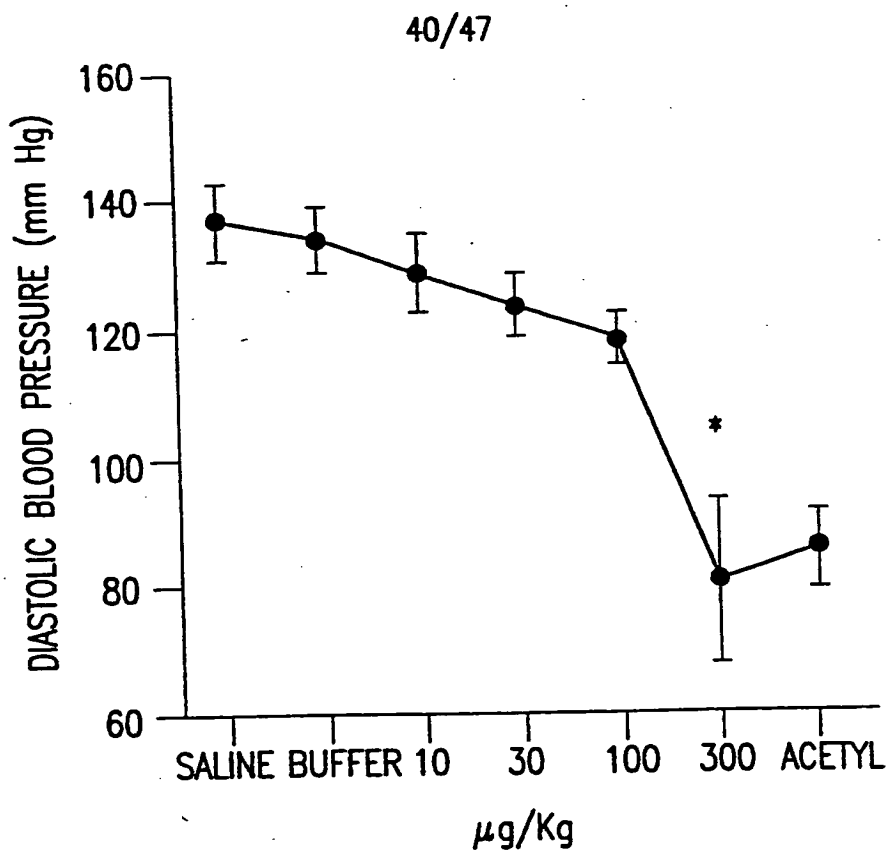


FIG.26A

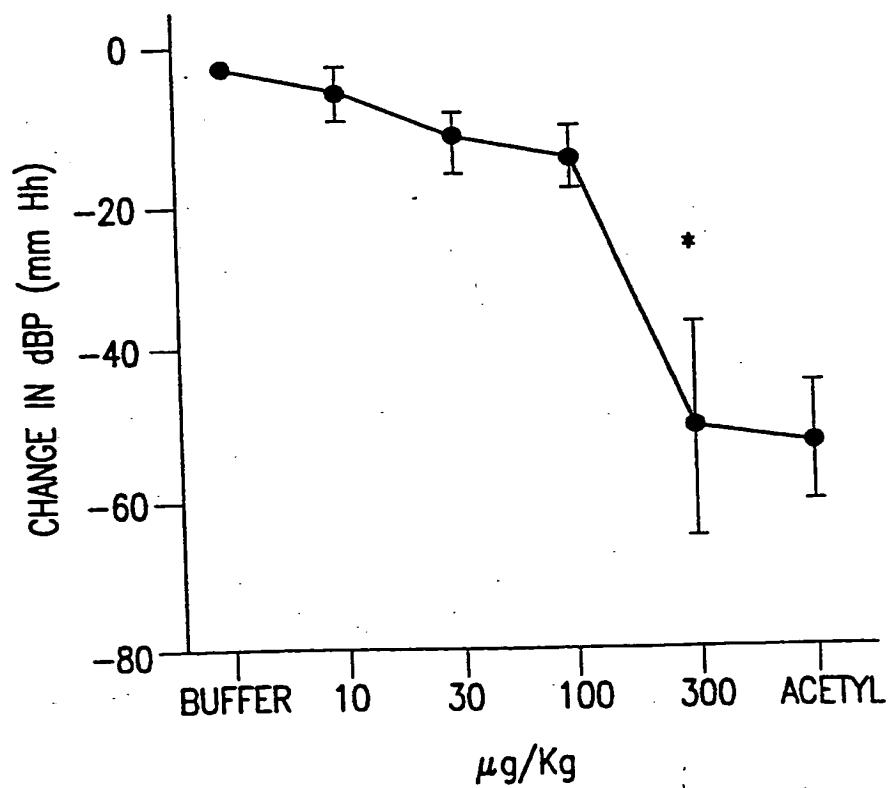


FIG.26B

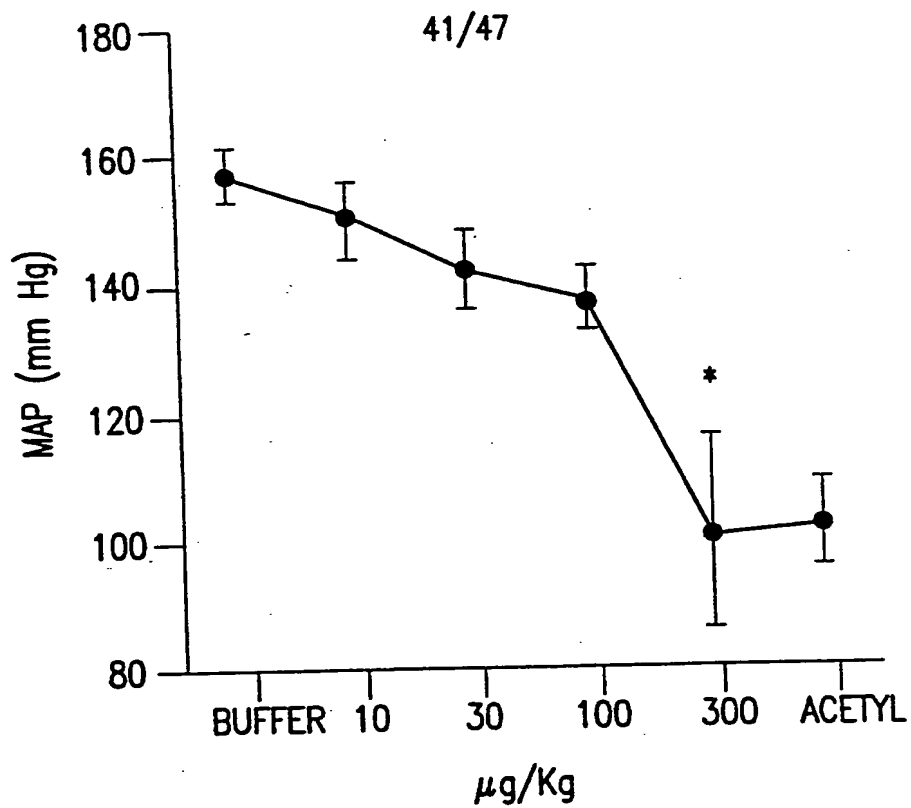


FIG.26C

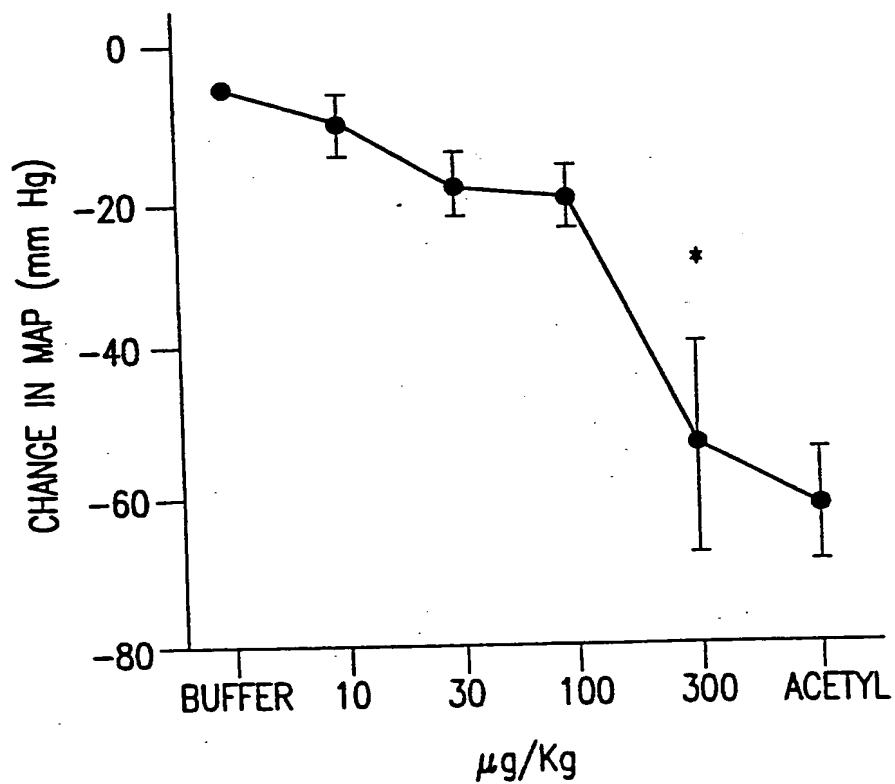


FIG.26D

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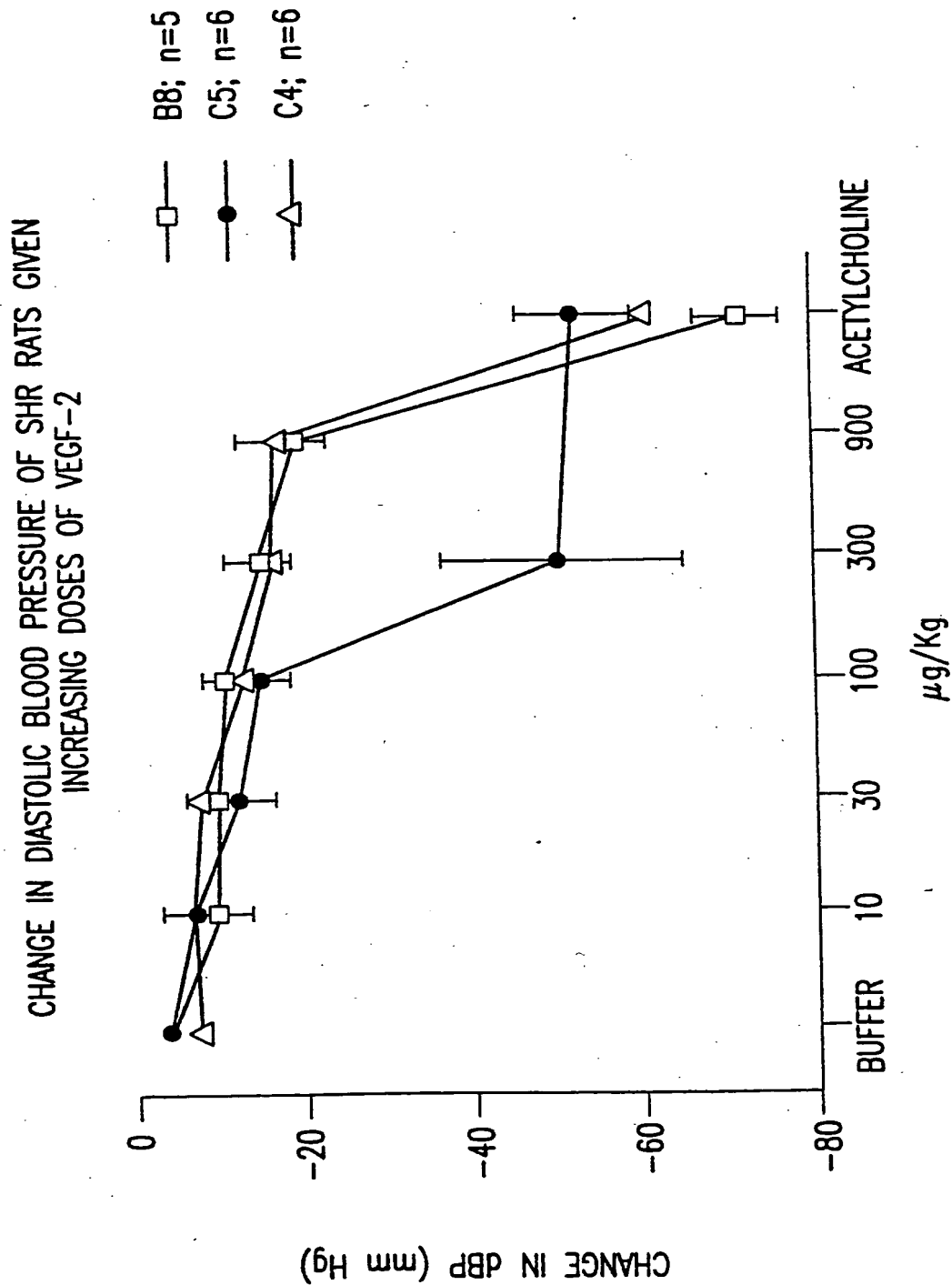


FIG.26E

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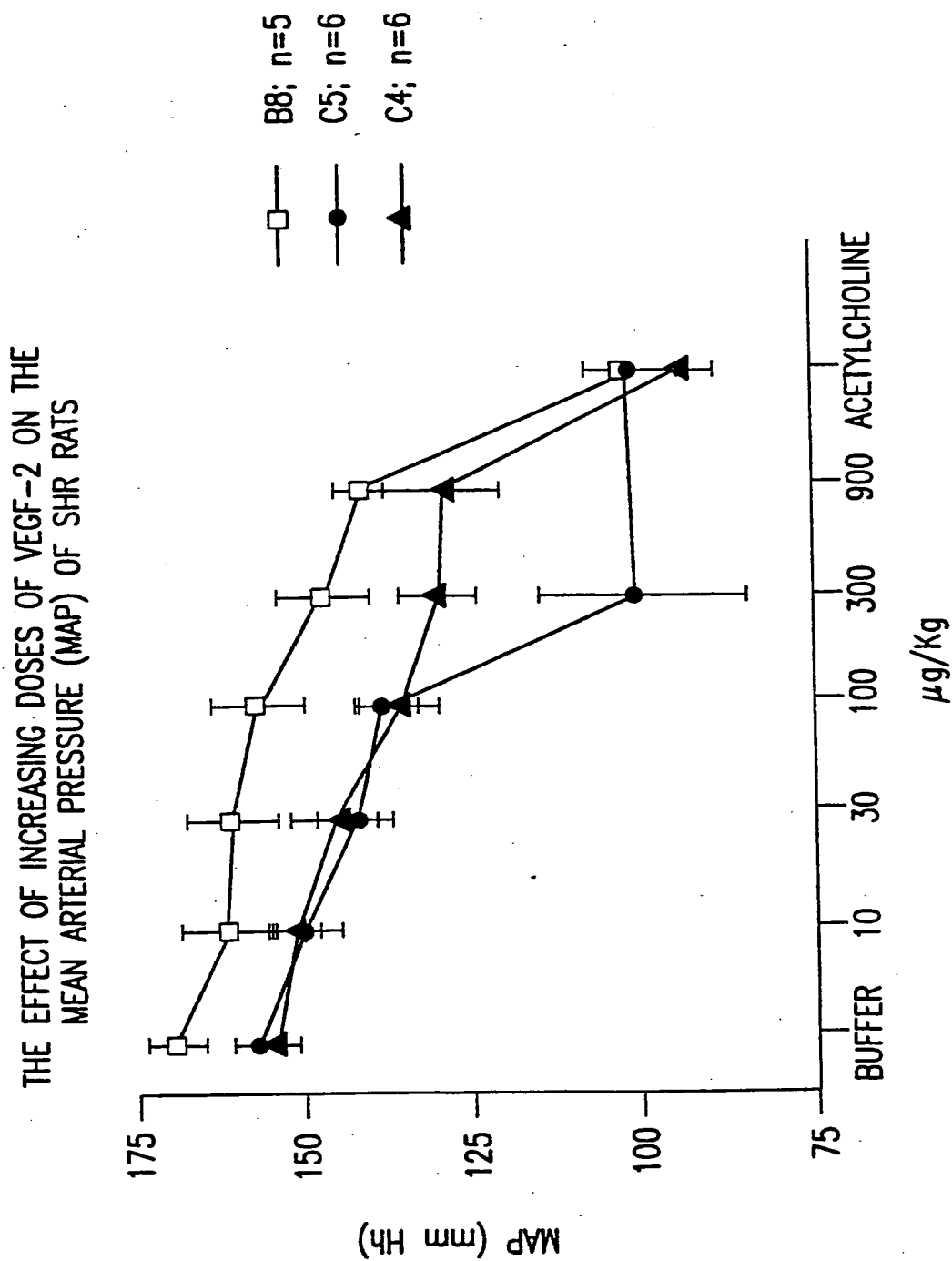


FIG.26F

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THE EFFECT OF VEGF-2 ON THE DIASTOLIC BLOOD PRESSURE OF SHR RATS

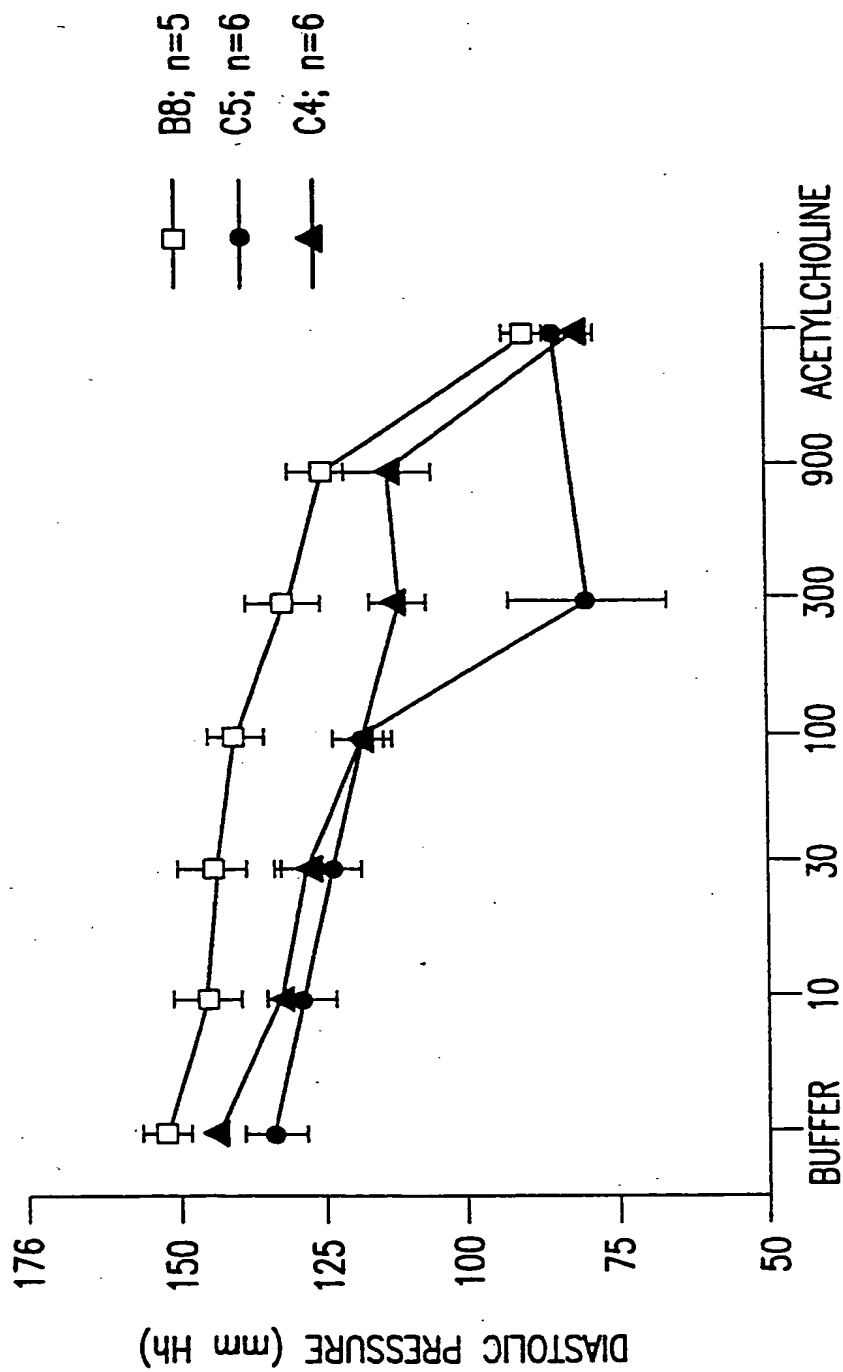


FIG.26G

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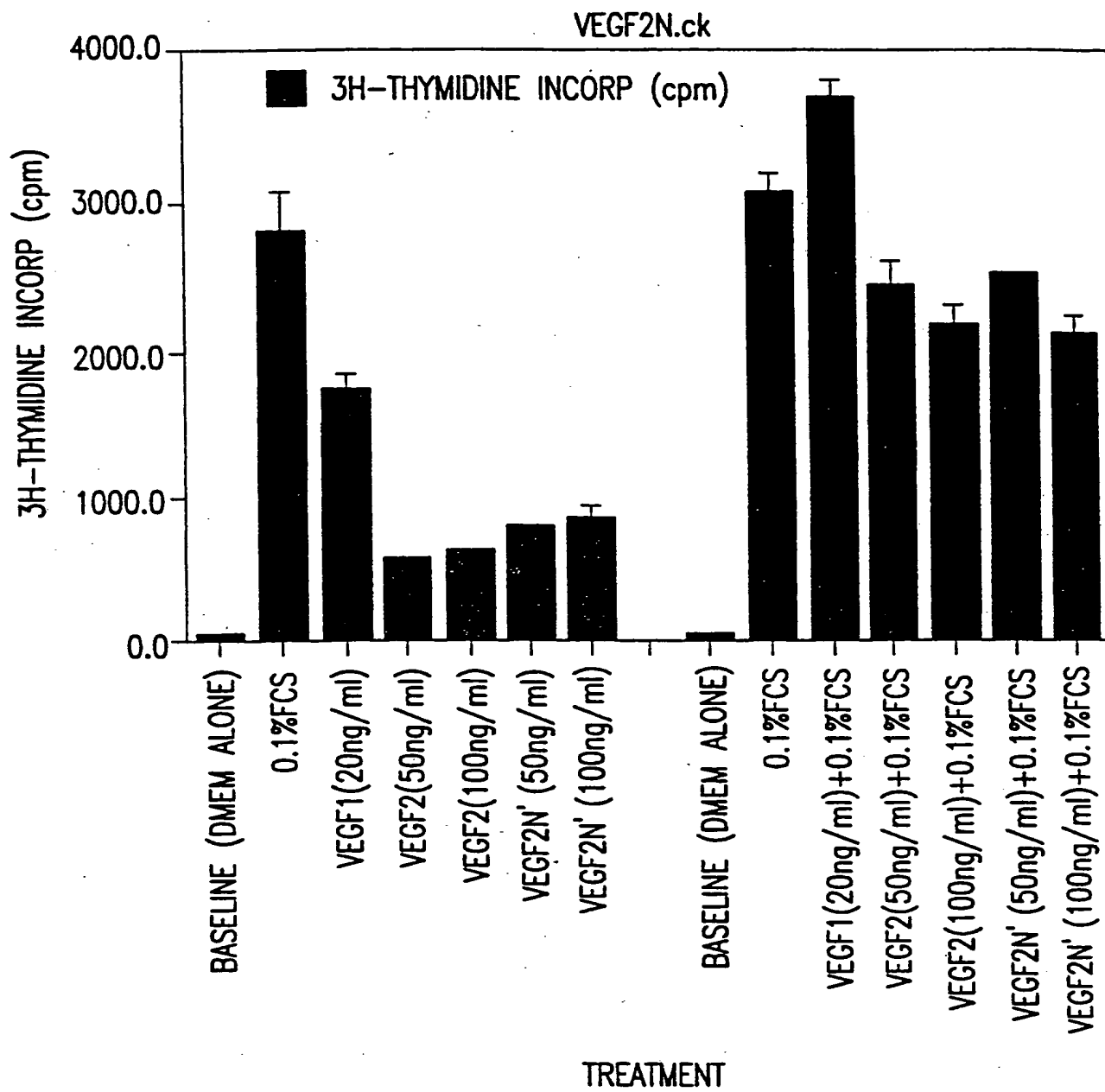


FIG.27

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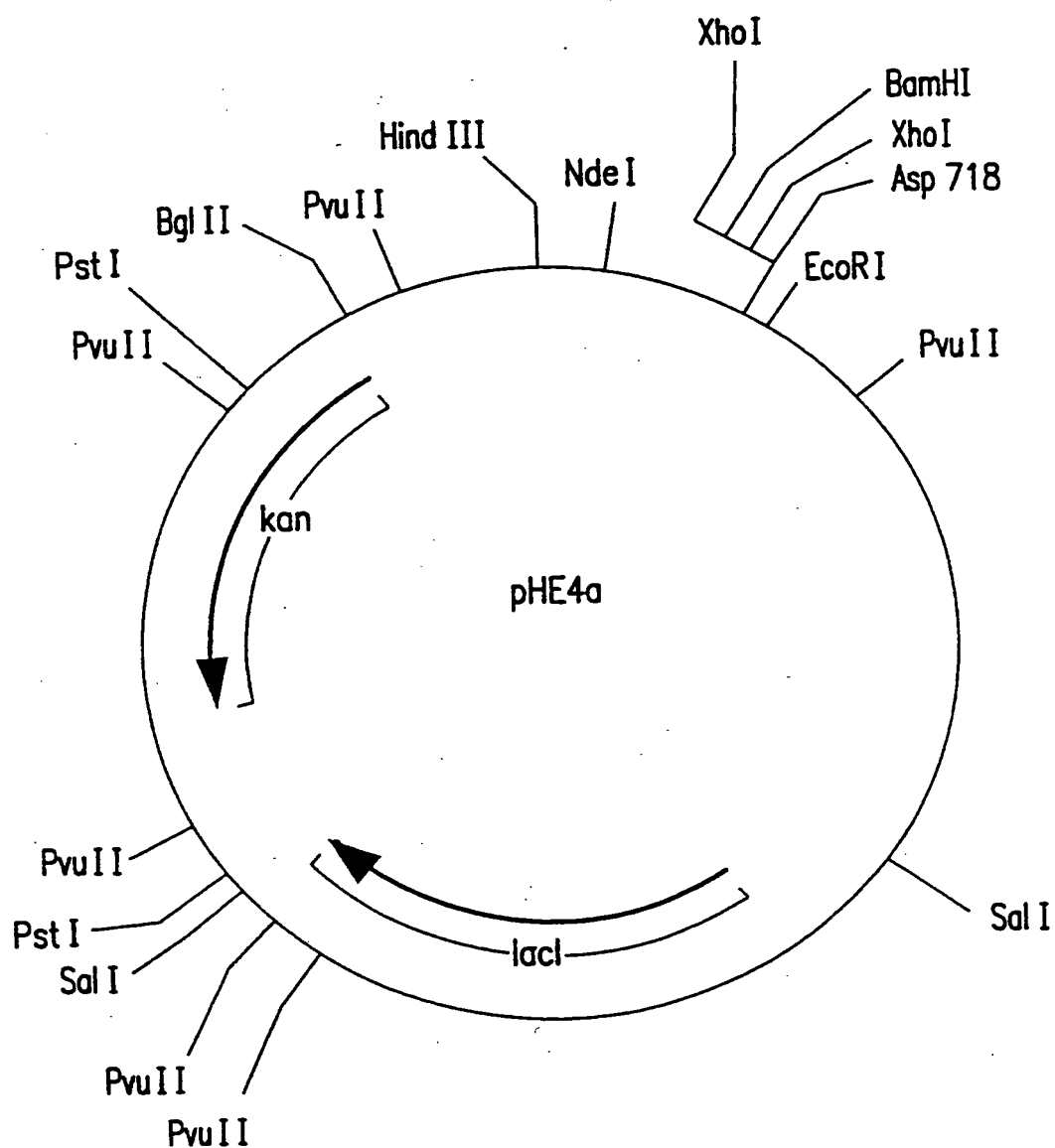


FIG.28

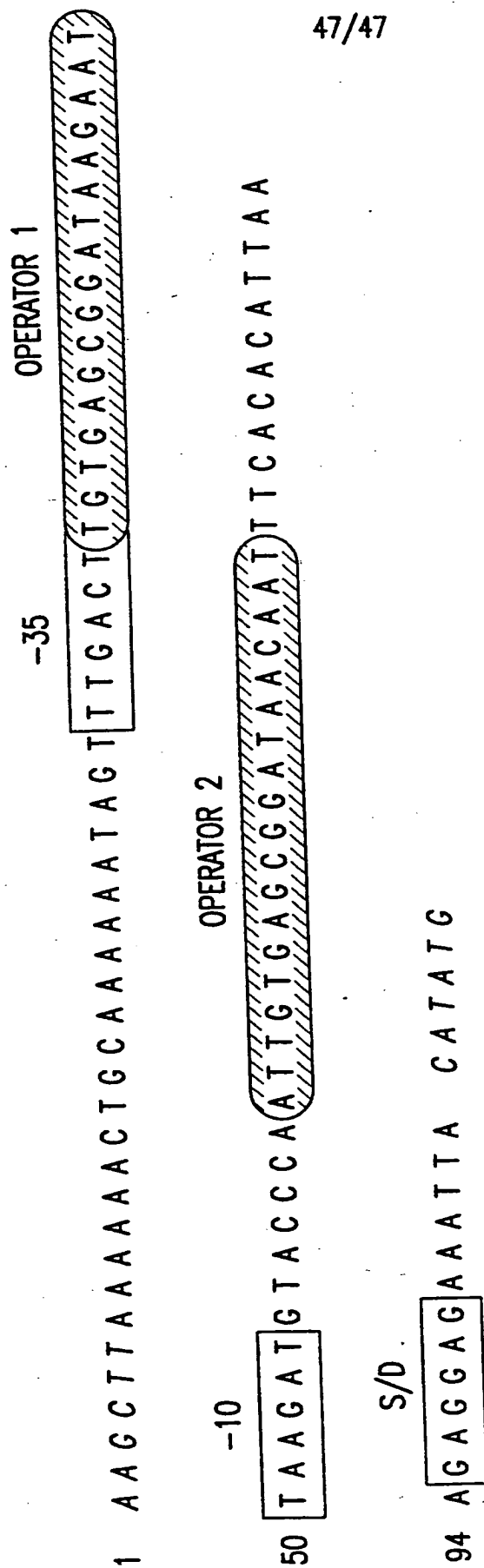


FIG.29